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ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY CLASS I PERMIT

COMPANY NAME: Phelps Dodge Morenci, Inc.
FACILITY NAME: Morenci
PERMIT NUMBER: M110734P1-99
DATE ISSUED: May 30, 2001
EXPIRY DATE: May 30, 2006

ABSTRACT

This operating permit is issued to Phelps Dodge Morenci, Inc. (PDMI), the Permittee, for operation of their Morenci mine (Morenci), which is located on U.S. Highway 191 in Morenci, Greenlee County, Arizona. PDMI operates an open pit copper mine, ore processing and copper extraction facilities. Copper is the primary product produced by PDMI. Copper is produced through conventional milling and froth floatation which produces a copper concentrate and through solution extraction and electrowinning. Several associated activities such as power generation and slaked lime production occur at Morenci.

All definitions, terms, and conditions used in this permit conform to those in the Arizona Administrative Code R18-2-101 et. seq. (A.A.C.) and 40 Code of Federal Regulations (CFR), except as otherwise defined in this permit. Unless noted otherwise, references cited in the permit conditions refer to the A.A.C. All material permit conditions have been identified within the permit by a double underline. All terms and conditions in this permit are enforceable by the Administrator of the U.S. Environmental Protection Agency.

PDMI is a "major source". The potential emission rates of the following pollutants are greater than 100 tons per year: (i) particulate matter, (ii) sulfur dioxide, and (iii) nitrogen oxides. This permit is issued in accordance with Title V of the Clean Air Act, and Title 49, Chapter 3 of the Arizona Revised Statutes. Applicable requirements for the operations at Morenci are listed in Attachment "C" of this permit.

TABLE OF CONTENTS

ATTACHMENT "A": GENERAL PROVISIONS	3
I. Permit Expiration and Renewal	3
II. Compliance with Permit Conditions	3
III. Permit Revision, Reopening, Revocation and Reissuance, of Termination for Cause	3
IV. Posting of Permit	4
V. Fee Payment	4
VI. Annual Emissions Inventory Questionnaire	4
VII. Compliance Certification	5
VIII. Certification of Truth, Accuracy and Completeness	6
IX. Inspection and Entry	6
X. Permit Revision Pursuant to Federal Hazardous Air Pollutant Standard	6
XI. Accidental Release Program	6
XII. Reporting of Excess Emissions, Permit Deviations, and Emergencies	6
XIII. Record Keeping Requirements	9
XIV. Reporting Requirements	10
XV. Duty to Provide Information	10
XVI. Permit Amendment or Revision	10
XVII. Facility Change Without Permit Revision	10
XVIII. Testing Requirements	12
XIX. Property Rights	13
XX. Severability Clause	13
XXI. Permit Shield	13
ATTACHMENT "B": SPECIFIC CONDITIONS	14
I. Facility-wide Requirements	14
II. Requirements for the Mine	14
III. Material Transfer Operations (from the Mine to the Metcalf Concentrator and from the Metcalf Concentrator to the Southwest SX Circuit)	20
IV. Requirements for the Concentrators	23
V. Morenci Steam Power Plant	29
VI. Metcalf Combined Cycle Power Plant	31
VII. Southwest Lime Plant	41
VIII. Solution Extraction/Electrowinning Process System	44
IX. Tank Farm	47
X. Diesel Generator SU-46	47
XI. Non-point Sources	49
XII. Concrete Batch Plant	54
XIII. Mine Portable Grizzly (Process No. 189)	55
XIV. Pumps and Compressors for Existing Storage Vessels for Petroleum Liquids	56
XV. Other Periodic Activities	56
ATTACHMENT "C": APPLICABLE REQUIREMENTS	60
ATTACHMENT "D": EQUIPMENT LIST	62

ATTACHMENT "A": GENERAL PROVISIONS

Air Quality Control Permit No. M110734P1-99

For

Phelps Dodge Morenci, Inc.

I. PERMIT EXPIRATION AND RENEWAL [A.R.S. § 49-426.F, A.A.C. R18-2-304.C.2, 306.A.1, and 322]

- A. This permit is valid for a period of five years from the date of issuance of the permit.
- B. The Permittee shall submit an application for renewal of this permit at least 6 months, but not more than 18 months prior to the date of permit expiration.

II. COMPLIANCE WITH PERMIT CONDITIONS

[A.A.C. R18-2-306.A.8.a. and b, A.R.S. § 49-463, and A.R.S. §49-464]

- A. The Permittee shall comply with all the conditions contained in Attachments “A” through “E” of this permit including all applicable requirements of Arizona air quality statutes and the air quality rules. Any permit noncompliance constitutes a violation of the Arizona Revised Statutes and is grounds for enforcement action; for permit termination, revocation and reissuance, or revision; or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act (Act).
- B. Need to halt or reduce activity not a defense. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE [A.A.C. R18-2-306.A.8.c and 321.A]

- A. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, or termination; or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- B. The permit shall be reopened and revised under any of the following circumstances:
 - 1. Additional applicable requirements under the Act become applicable to the Class I source. Such reopening shall only occur if there are three or more years remaining in the permit term. The reopening shall be completed not later than 18 months after

promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to R18-2-322(B). Any permit revision required pursuant to this subparagraph shall comply with provisions in R18-2-322 for permit renewal and shall reset the five year permit term.

2. Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the Class I permit.
 3. The Director or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
 4. The Director or the Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.
- C. Proceedings to reopen and issue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall, except for reopenings under paragraph 1 above, affect only those parts of the permit for which cause to reopen exists. Such reopenings shall be made as expeditiously as practicable. Permit reopenings for reasons other than those stated in paragraph III.B.1 of this Attachment shall not result in a resetting of the five year permit term.

IV. POSTING OF PERMIT

[A.A.C. R18-2-315]

- A. Permittee shall post this permit, or a certificate of permit issuance where the facility is located in such a manner as to be clearly visible and accessible. All equipment covered by the permit shall be clearly marked with one of the following:
1. Current permit number.
 2. Serial number or other equipment number that is also listed in the permit to identify that piece of equipment.
- B. A copy of the complete permit shall be kept on the site.

V. FEE PAYMENT

[A.A.C. R18-2-326 and 306.A.9.]

Permittee shall pay fees to the Director pursuant to A.R.S. § 49-426(E) and A.A.C. R18-2-326.

VI. ANNUAL EMISSIONS INVENTORY QUESTIONNAIRE

[A.A.C. R18-2-327]

- A. Permittee shall complete and submit to the Director an annual emissions inventory questionnaire. The questionnaire is due by March 31 or ninety days after the Director makes the inventory form available each year, whichever occurs later, and shall include emission information for the previous calendar year.
- B. The questionnaire shall be on a form provided by the Director and shall include the information required by A.A.C. R18-2-327.

VII. COMPLIANCE CERTIFICATION

- A. Permittee shall submit a compliance certification to the Director twice each year, which describes the compliance status of the source with respect to each permit condition. The first certification shall be submitted no later than April 15th, and shall report the compliance status of the source during the period between September 16th of the previous year, and March 15th of the current year. The second certification shall be submitted no later than October 15th, and shall report the compliance status of the source during the period between March 16th and September 15th of the current year.

[A.A.C. R18-2-309.2.a]

The compliance certifications shall include the following:

- 1. Identification of each term or condition of the permit that is the basis of the certification; [A.A.C. R18-2-309.2.c.i]
- 2. Compliance status with each applicable requirement; [A.A.C. R18-2-309.2.c.ii]
- 3. Whether compliance was based on continuous or intermittent data; [A.A.C. R18-2-309.2.c.iii]
- 4. Each deviation and take it into account in the compliance certification; [40 CFR §70.6.c.5.iii.C]
- 5. Any other material information that must be included in the certification to comply with section 113(c)(2) of the Act, which prohibits knowingly making a false certification or omitting material information; [40 CFR §70.6.c.5.iii.B]
- 6. Method(s) used for determining the compliance status of the source, currently and over the reporting period; [A.A.C. R18-2-309.2.c.iv]
- 7. A progress report on all outstanding compliance schedules submitted pursuant to Section XII.D of this Attachment. Progress reports submitted with compliance certifications satisfy the reporting requirements of A.A.C. R18-2-309.5.d.

[A.A.C. R18-2-309.5.d]

- B. A copy of all compliance certification for Class I permits shall also be submitted to the EPA Administrator. [A.A.C. R18-2-309.2.d]

VIII. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS [A.A.C. R18-2-309.3]

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this part shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

IX. INSPECTION AND ENTRY [A.A.C. R18-2-309.4]

The Permittee shall allow the Director or the authorized representative of the Director upon presentation of proper credentials to:

- A. Enter upon the Permittee's premises where a source is located or emissions-related activity is conducted, or where records are required to be kept under the conditions of the permit;
- B. Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;
- C. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- D. Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and
- E. Record any inspection by use of written, electronic, magnetic and photographic media.

X. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD

If this source becomes subject to a standard promulgated by the Administrator pursuant to section 112(d) of the Act, then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard. [A.A.C. R18-2-304.C]

XI. ACCIDENTAL RELEASE PROGRAM

If this source becomes subject to the provisions of 40 CFR Part 68, then the Permittee shall comply with these provisions according to the timeline specified in 40 CFR Part 68. [40 CFR 68]

XII. REPORTING OF EXCESS EMISSIONS, PERMIT DEVIATIONS, AND EMERGENCIES

A. EXCESS EMISSIONS REPORTING

[A.A.C R18-2-310.C]

1. Excess emissions, as defined in A.A.C. R18-2-101.37, shall be reported as follows:

a. The Permittee shall report to the Director any emissions in excess of the limits established by this permit. Such report shall be in two parts as specified below:

- (1) Notification by telephone or facsimile within 24 hours of the time when the Permittee first learned of the occurrence of excess emissions including all available information from paragraph b. of this subsection.
- (2) Detailed written notification within 72 hours of the notification pursuant to subparagraph (1) of this paragraph.

b. Report shall contain the following information:

- (1) Identity of each stack or other emission point where the excess emissions occurred.
- (2) Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions.
- (3) Date, time and duration or expected duration of the excess emissions.
- (4) Identity of the equipment from which the excess emissions emanated.
- (5) Nature and cause of such emissions.
- (6) If the excess emissions were the result of a malfunction, steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions.
- (7) Steps taken to limit the excess emissions. If the excess emissions resulted from start-up or malfunction of Steam Unit 2 or 3, the report shall contain a list of the steps taken to comply with the permit procedures.

2. In the case of continuous or recurring excess emissions, the notification requirements of this section shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in such notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period or changes in the nature of the emissions as originally reported shall require additional notification pursuant to subsection A.1.a.(2) of this Section]
3. It shall be the burden of the Permittee to demonstrate, through submission of the data and information required by Section XII.A of Attachment "A", that all reasonable and practicable measures within the Permittee's control were implemented to prevent the occurrence of excess emissions.

[A.A.C. R18-2-310.B]

B. PERMIT DEVIATIONS REPORTING

[A.A.C. R18-2-306.A.5]

1. Permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Prompt reporting shall mean that the report was submitted to the Director by certified mail, facsimile, or hand delivery within two working days of the time the deviation occurred.
2. All instances of deviations from permit requirements shall be clearly identified in the required semiannual monitoring report specified in Attachment "B", Section I.B, and shall be certified by the responsible official.

[A.A.C. R18-2-306.A.5.a]

C. EMERGENCY PROVISION

[A.A.C. R18-2-306.E]

1. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.
 - a. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of paragraph (c) of this subsection are met.
 - b. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence

that:

- (1) An emergency occurred and that the permittee can identify the cause(s) of the emergency;
- (2) The permitted facility was at the time being properly operated;
- (3) During the period of the emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
- (4) The permittee submitted notice of the emergency to the Director by certified mail, facsimile, or hand delivery within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective action taken.

- c. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- d. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

- D. For any excess emission or permit deviation that cannot be corrected within 72 hours, the Permittee is required to submit a compliance schedule to the Director within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms or conditions that have been violated. [A.R.S. 49-426.I.5]

XIII. RECORD KEEPING REQUIREMENTS

[A.A.C. R18-2-306.A.4]

- A. Permittee shall keep records of all required monitoring information including, but not limited to, the following:
 1. The date, place as defined in the permit, and time of sampling or measurements;
 2. The date(s) analyses were performed;
 3. The name of the company or entity that performed the analyses;
 4. A description of the analytical techniques or methods used;
 5. The results of such analyses; and

6. The operating conditions as existing at the time of sampling or measurement.
- B. Permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings or other data recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

XIV. REPORTING REQUIREMENTS

[A.A.C. R18-2-306.A.5.a]

Permittee shall submit the following reports :

- A. Compliance certifications in accordance with Section VII of Attachment “A”.
- B. Reports of excess emissions, permit deviations, and emergencies in accordance with Section XII of Attachment “A”.
- C. Other reports required by Section I of Attachment “B”.

XV. DUTY TO PROVIDE INFORMATION

[A.A.C. R18-2-304.G and 306.A.8.e]

- A. The Permittee shall furnish to the Director, within a reasonable time, any information that the Director may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Director copies of records required to be kept by the permit. For information claimed to be confidential, the Permittee shall furnish an additional copy of such records directly to the Administrator along with a claim of confidentiality.
- B. If the Permittee has failed to submit any relevant facts or if the Permittee has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.

XVI. PERMIT AMENDMENT OR REVISION

[A.A.C. R18-2-318, 319 and 320]

Permittee shall apply for a permit amendment or revision for changes to the facility which do not qualify for a facility change without revision under Section XVII, as follows:

- A. Administrative Permit Amendment (A.A.C. R18-2-318);
- B. Minor Permit Revision (A.A.C. R18-2-319);
- C. Significant Permit Revision (A.A.C. R18-2-320).

The applicability and requirements for such action are defined in the above referenced regulations.

XVII. FACILITY CHANGE WITHOUT PERMIT REVISION

[A.A.C. R18-2-317]

- A. Permittee may make changes at the permitted source without a permit revision if all of the following apply:
1. The changes are not modifications under any provision of Title I of the Act or under A.R.S. § 49-401.01(17).
 2. The changes do not exceed the emissions allowable under the permit whether expressed therein as a rate of emissions or in terms of total emissions.
 3. The changes do not violate any applicable requirements or trigger any additional applicable requirements.
 4. The changes satisfy all requirements for a minor permit revision under R18-2-319(A).
 5. The changes do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.
- B. The substitution of an item of process or pollution control equipment for an identical or substantially similar item of process or pollution control equipment shall qualify as a change that does not require a permit revision, if it meets all of the requirements of subsections (A) and (C) of this Section.
- C. For each such change under subsections A and B of this Section, a written notice by certified mail or hand delivery shall be received by the Director and, for Class I permits, the Administrator, a minimum of 7 working days in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided less than 7 working days in advance of the change but must be provided as far in advance of the change as possible or, if advance notification is not practicable, as soon after the change as possible. Each notification shall include:
1. When the proposed change will occur.
 2. A description of each such change.
 3. Any change in emissions of regulated air pollutants.
 4. The pollutants emitted subject to the emissions trade, if any.
 5. The provisions in the implementation plan that provide for the emissions trade with which the source will comply and any other information as may be required by the

provisions in the implementation plan authorizing the trade.

6. If the emissions trading provisions of the implementation plan are invoked, then the permit requirements with which the source will comply.
7. Any permit term or condition that is no longer applicable as a result of the change.

XVIII. PERFORMANCE TESTING REQUIREMENTS

[A.A.C.R18-2-312]

A. Operational Conditions During Performance Testing

Performance tests shall be conducted during operation at the load of the unit under representative operational conditions unless other conditions are required by the applicable test method or in this permit. With prior written approval from the Director, testing may be performed at a lower rate. Operations during start-up, shutdown, and malfunction (as defined in A.A.C. R18-2-101) shall not constitute representative operational conditions unless otherwise specified in the applicable standard.

B. Performance tests shall be conducted and data reduced in accordance with the test method and procedures contained in the Arizona Testing Manual unless modified by the Director pursuant to A.A.C. R18-2-312.B.

C. Performance Test Plan

At least 14 calendar days prior to performing a test, the owner or operator shall submit a test plan to the Director, in accordance with the Arizona Testing Manual. This test plan must include among others identified in the Arizona Testing Manual the following:

1. test duration;
2. test location(s);
3. test method(s); and
4. source operation and other parameters that may affect test results.

D. Stack Sampling Facilities

Permittee shall provide or cause to be provided, performance testing facilities as follows:

1. Sampling ports adequate for test methods applicable to the facility;
2. Safe sampling platforms;
3. Safe access to sampling platforms; and
4. Utilities for sampling and testing equipment.

E. Interpretation of Final Results

Each performance test shall consist of three separate runs using the required test method. Each run shall be conducted in accordance with the applicable standard and test method. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. If a sample is accidentally lost or conditions occur which are not under the Permittee's control and which may invalidate the run, compliance may, upon the Director's approval, be determined using the arithmetic mean of the other two runs. If the Director, or Director's designee, is present, tests may only be stopped with the Director's or such designee's approval. If the Director or the Director's designee is not present, tests may only be stopped for good cause. Good cause includes, forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions or other conditions beyond the Permittee's control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation which demonstrates good cause must be submitted.

F. Report of Final Test Results

A written report of the results of all required performance tests shall be submitted to the Director within 30 days after the test is performed. The report shall be submitted in accordance with the Arizona Testing Manual and A.A.C. R18-2-312.A.

XIX. PROPERTY RIGHTS

[A.A.C. R18-2-306.A.8.d]

This permit does not convey any property rights of any sort, or any exclusive privilege.

XX. SEVERABILITY CLAUSE

[A.A.C. R18-2-306.A.7]

The provisions of this permit are severable. In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain valid and in force.

XXI. PERMIT SHIELD

[A.A.C. R18-2-325]

Compliance with the conditions of this permit shall be deemed compliance with the applicable requirements identified in Attachment "C" of this permit. The permit shield shall not apply to any changes made pursuant to Section XVI.B of this Attachment and Section XVII of this Attachment.

ATTACHMENT "B": SPECIFIC CONDITIONS

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

I. Facility-wide Requirements

- A. Within 180 days of issuance of this permit the owner or operator shall have on site or on call a person that is certified in EPA Reference Method 9. [A.A.C. R18-2-306.A.3]
- B. At the time the compliance certifications required by Section VII of Attachment "A" are submitted, the Permittee shall submit reports of all monitoring activities required by this Attachment performed in the same six month period as applies to the compliance certification period. [A.A.C. R18-2-306.A.5.a]

II. Requirements for the Mine

A. Emission Limitations/Standards

1. Affected Facilities Subject to the Standards of Performance for Existing Nonferrous Metals Industry Sources (*Emission units identified as "Existing" in Column 8, Table D-1 of Attachment "D" of this permit*) Shall Comply with the Following:

- a. Particulate Matter Standard [A.A.C. R18-2-721.B.2 and D]

Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere from any of the equipment in any one hour in total quantities in excess of the amount calculated by the following equation:

$$E = 55.0P^{0.11} - 40$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

- b. Opacity Standard [A.A.C. R18-2-702.B]

The opacity of emissions from any of the equipment into the atmosphere shall not be greater than 40 percent as measured by EPA Reference Method 9.

2. Affected Facilities Subject to the New Source Performance Standards (*Emission units identified as "New" in Column 8, Table D-1 of Attachment "D" of this permit*) Shall Comply with the Following:

- a. Particulate Matter Standard

Permittee shall not cause to be discharged into the atmosphere from an affected facility any stack emissions that contain particulate matter in excess of 0.05 grams per dry standard cubic meter. [40 CFR 60.382(a)(1)]

- b. Opacity Standard

- (1) Permittee shall not cause to be discharged into the atmosphere any stack emissions that exhibit greater than 7 percent opacity, as measured by EPA Reference Method 9, unless the stack emissions are discharged from a wet scrubbing emission control device.

[40 CFR 60.382(a)(2) and A.A.C. R18-2-331]

- (2) Permittee shall not cause to be discharged into the atmosphere from an affected facility any process fugitive emissions that exhibit greater than 10 percent opacity.

[40 CFR 60.382(b) and A.A.C. R18-2-331]

B. Air Pollution Control Requirements

1. At all times, including periods of startup, shutdown, and malfunction, Permittee shall, to the extent practicable, maintain and operate the wet scrubbers associated with the primary crushers in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.

[40 CFR 60.11(d) and A.A.C. R18-2-331]

2. Permittee shall operate a baghouse to capture particulate matter emissions associated with the surge pile.

[A.A.C. R18-2-331]

C. Monitoring, Recordkeeping, and Reporting Requirements

1. Affected Facilities Subject to the Standards of Performance for Existing Nonferrous Metals Industry Sources Shall Comply with the Following:

a. Initial Requirement

Within 180 days of issuance of this permit, Permittee shall conduct one certified Method 9 observation on the surgepile baghouse while it is operating at normal representative working conditions to establish a baseline opacity level. Within 30 days of establishing the baseline opacity, the Permittee shall report the results to the Director.

[A.A.C. R18-2-306.A.3.b]

b. Daily Monitoring Requirement

Permittee shall record the daily process rate and hours of operation of all material handling facilities.

[A.A.C. R18-2-721.F]

c. Bi-weekly (Every Two Weeks) Monitoring Requirement

[A.A.C. R18-2-306.A.3.b]

(1) Within 180 days of issuance of this permit, Permittee shall submit and implement a visual observation plan as approved by the Director. The observation plan shall identify a central lookout station or multiple observation points, as appropriate, from where the point and fugitive sources of emissions covered by this section shall be monitored. When multiple observation points are used, all the point and fugitive sources of emissions associated with each observation point shall be specifically identified within the observation plan. Any changes to the approved observation plan shall be made only with the prior approval of the Director.

(2) The certified Method 9 observer shall conduct in accordance with the observation plan a bi-weekly visual survey of visible emissions from the metallic mineral mining units covered by this section when they are in operation.

(3) For Point Sources Covered by this Section

(a) If the observer, during the visual survey, does not see a plume from the surgepile baghouse that on an instantaneous basis appears to exceed the baseline level, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.

(b) If the observer sees a plume from the surgepile baghouse that on an instantaneous basis appears to exceed the

baseline level, then the observer shall if practicable take a six-minute Method 9 observation of the plume.

- (c) If the six-minute opacity of the plume exceeds the baseline level but is less than the opacity standard, Permittee shall initiate corrective action, as necessary, to reduce opacity to or below the baseline level. The Permittee shall make a record of the following:
 - i) Location, date, and time of the test; and
 - ii) The results of the Method 9 observation.
- (d) If the six-minute opacity of the plume exceeds both the baseline level and the opacity standard, then the Permittee shall do the following:
 - i) Adjust or repair the controls or equipment to reduce opacity to or below the baseline level; and
 - ii) Report it as an excess emission for opacity.
- (e) If the six-minute opacity of the plume is less than the baseline, the observer shall make a record of the following:
 - i) Location, date, and time of the test; and
 - ii) The results of the Method 9 observation.
- (f) If corrective actions fail to reduce opacity to or below the baseline level, the Permittee shall adopt the following course of action:
 - i) document all corrective action taken; and
 - ii) initiate procedures to re-establish the baseline within 48 hours in accordance with subsection (g).
- (g) If necessitated by the results of the bi-weekly monitoring, Permittee may reestablish the baseline opacity level. Reestablishment of the baseline shall be performed utilizing the same procedures used in setting up the initial baseline level. Within 30 days of re-establishing the baseline opacity, the Permittee shall report the results to the Director. The report shall also contain a description of the need for re-establishing the baseline(s).

(4) For Fugitive Sources Covered by this Section

- (a) If the observer, during the visual survey, does not see any plume from any fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.
- (b) If the observer sees a plume from a fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall if practicable take a six-minute Method 9 observation of the plume.
- (c) If the six-minute opacity of the plume exceeds the opacity standard, Permittee shall do the following:
 - i) adjust or repair the controls or equipment to reduce opacity to below the opacity standard;
 - ii) and report it as excess emissions.
- (d) If the six-minute opacity of the plume is less than the opacity standard, the observer shall make a record of the following:
 - i) Location, date, and time of the test; and
 - ii) The results of the Method 9 observation.

d. Performance Testing Requirements [A.A.C. R18-2-306.A.3.b]

- (1) Permittee shall conduct one set of performance tests for particulate matter on the stack of the surgepile baghouse during the permit term. These performance tests shall be conducted within six months prior to this permit expiration. These performance tests shall be conducted in accordance with Reference Method 5 or 17 in 40 CFR 60, Appendix A.
- (2) Permittee shall conduct an annual performance test for opacity on the stack of the surgepile baghouse. These performance tests shall be conducted in accordance with Reference Method 9 in 40 CFR 60, Appendix A and procedures in 40 CFR 60.11.

2. Affected Facilities Subject to the New Source Performance Standards Shall Comply with the Following:

a. Continuous Monitoring Requirement

- (1) For each scrubber, Permittee shall calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through the scrubber. The monitoring device must be certified by the manufacturer to be accurate within ± 250 pascals (± 1 inch water) gauge pressure and must be calibrated on an annual basis in accordance with the manufacturer's instructions. [40 CFR 60.384(a) and A.A.C. R18-2-331]

- (2) For each scrubber, Permittee shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to the scrubber. The monitoring device must be certified by the manufacturer to be accurate within ± 5 percent of the design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with the manufacturer's instructions. [40 CFR 60.384(b) and A.A.C. R18-2-331]

b. Weekly Recording Requirement

Permittee shall record on a weekly basis the measurements of both the change in the pressure of the gas stream across the scrubber and the scrubbing liquid flow rate. [40 CFR 60.385(b)]

c. Bi-weekly Monitoring Requirement

In accordance with Sections II.B.1.c(1), II.B.1.c(2), and II.B.1.c(4) of this Attachment, Permittee shall conduct a bi-weekly visual survey of visible emissions from the fugitive sources covered by this section when they are in operation. [A.A.C. R18-2-306.A.3.b]

d. Semi-annual Reporting Requirement

Permittee shall submit semi-annual reports to the Director of occurrences when the measurements of the scrubber pressure loss (or gain) and liquid flow rate differ by more than ± 30 percent from the average obtained during the most recent performance test. These reports shall be postmarked within 30 days following the end of the second and fourth calendar quarters.

[40 CFR 60.385(c) and (d) and 306.A.3.b]

e. Performance Testing Requirement

[A.A.C. R18-2-306.A.3.b]

Permittee shall conduct one set of performance test(s) for particulate matter on the following stacks in accordance with the following schedule:

First year of permit issuance: Stack Nos. 1 and 2 (Process No 005 and 006 respectively)

These performance tests shall be conducted in accordance with Reference Method 5 or 17 in 40 CFR 60, Appendix A. Permittee shall record the change in scrubber pressure and the scrubbing liquid flow rate during the performance test.

D. Throughput Limitation

1. The amount of ore crushed at the pit shall not exceed 62.58×10^6 tons per year on a twelve month rolling total basis without prior approval from the Director.

[Condition No. 8 Installation Permit 1204(Amended)]

2. Permittee shall monitor and record the daily process rates and hours of operation of the in-pit crushers.

[Condition No. 8 Installation Permit 1204(Amended)]

III. Material Transfer Operations (from the Mine to the Metcalf Concentrator and from the Metcalf Concentrator to the Southwest SX Circuit)

A. Opacity Standard

Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent which exceeds 40% opacity as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.B]

B. Air Pollution Control Requirements

1. Fabric Filter dust collectors shall be used to control particulate matter emissions from the following conveyor drop points: R1A to R2, R1B to R2, R2 to R3, R3 to R4, R4 to R5, R5 to R6, 14 to S10, S10 to S11, fine ore stockpile to A1A, A1A to A2A, and A1A to A2C.

2. Water sprays shall be used to control particulate matter emissions from the conveyor drop points to the fine ore stockpile.

[Significant Revision #1001285 to Operating Permit #0325-85, Condition II.B and A.A.C. R18-2-331]

C. Voluntary Limitation

Permittee shall limit the emissions of particulate matter and particulate matter with an aerodynamic diameter less than 10 microns (PM-10) from the fabric filter dust collectors listed in Condition III.B.1 to 0.02 grains/dscf and 0.01 grains/dscf respectively.

[Significant Revision #1001285 to Operating Permit #0325-85, Condition II.C]

D. Monitoring, Recordkeeping, and Reporting Requirements

Bi-weekly Monitoring Requirement

[A.A.C. R18-2-306.A.3.b]

1. Within 180 days of issuance of this permit, Permittee shall submit and implement a visual observation plan as approved by the Director. The observation plan shall identify a central lookout station or multiple observation points, as appropriate, from where the point and fugitive sources of emissions covered by this section shall be monitored. When multiple observation points are used, all the point and fugitive sources of emissions associated with each observation point shall be specifically identified within the observation plan. Any changes to the approved observation plan shall be made only with the prior approval of the Director.
2. The certified Method 9 observer shall conduct, in accordance with the observation plan, a bi-weekly visual survey of visible emissions from the metallic mineral mining units covered by this section when they are in operation.
3. For Point Sources Covered by this Section
 - a. If the observer, during the visual survey, does not see a plume from the stacks that on an instantaneous basis appears to exceed the baseline level, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.
 - b. If the observer sees a plume from the stacks that on an instantaneous basis appears to exceed the baseline level, then the observer shall, if practicable, take a six-minute Method 9 observation of the plume.
 - c. If the six-minute opacity of the plume exceeds the baseline level but is less than the opacity standard, Permittee shall initiate corrective action, as necessary, to reduce opacity to or below the baseline level. The Permittee shall make a record of the following:
 - (1) Location, date, and time of the test; and
 - (2) The results of the Method 9 observation.
 - d. If the six-minute opacity of the plume exceeds both the baseline level and the opacity standard, then the Permittee shall do the following:
 - (1) Adjust or repair the controls or equipment to reduce opacity to or below the baseline level; and
 - (2) Report it as an excess emission for opacity.

- e. If the six-minute opacity of the plume is less than the baseline, the observer shall make a record of the following:
 - (1) Location, date, and time of the test; and
 - (2) The results of the Method 9 observation.
- f. If corrective actions fail to reduce opacity to or below the baseline level, the Permittee shall adopt the following course of action:
 - (1) document all corrective action taken; and
 - (2) initiate procedures to re-establish the baseline within 48 hours in accordance with subsection g.
- g. If necessitated by the results of the bi-weekly monitoring, Permittee may reestablish the baseline opacity level. Reestablishment of the baseline shall be performed utilizing the same procedures used in setting up the initial baseline level. Within 30 days of re-establishing the baseline opacity, the Permittee shall report the results to the Director. The report shall also contain a description of the need for re-establishing the baseline(s).

4. For Fugitive Sources Covered by this Section

- a. If the observer, during the visual survey, does not see any plume from any fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.
- b. If the observer sees a plume from a fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall, if practicable, take a six-minute Method 9 observation of the plume.
- c. If the six-minute opacity of the plume exceeds the opacity standard, Permittee shall do the following:
 - (1) adjust or repair the controls or equipment to reduce opacity to or below the opacity standard;
 - (2) and report it as excess emissions.
- d. If the six-minute opacity of the plume is less than the opacity standard, the observer shall make a record of the following:
 - (1) Location, date, and time of the test; and
 - (2) The results of the Method 9 observation.

E. Performance Testing Requirements

1. Permittee shall conduct performance tests for particulate matter emissions on Stack Numbers 076, 079, and 083 (corresponding process numbers 077, 080, and 201 respectively or fabric filter dust collectors 1, 4, and 7 respectively) within six months of start-up of the “mine for leach” operations authorized by Significant Revision #1001285 and six months prior to expiration of this permit. The performance tests shall be used to demonstrate compliance with the voluntary limitation accepted in Condition III.C.
2. EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of particulate matter. All particulate matter measured by the above mentioned reference methods shall be considered to have an aerodynamic diameter less than 10 microns.
[Significant Revision #1001285 to Operating Permit #0325-85, Condition II.E]

IV. Requirements for the Concentrators

A. Emission Limitations/Standards

1. Affected Facilities Subject to the Standard of Performance for Existing Nonferrous Metals Industry Sources (*Emission units identified as "Existing" in Column 8, Tables D-2 and D-3 of Attachment "D" of this permit*) Shall Comply with the Following:

a. Particulate Matter Standard [A.A.C. R18-2-721.B.2 and D]

- (1) Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere from any process source in any one hour in total quantities in excess of the amount calculated by the following equation:

$$E = 55.0P^{0.11} - 40$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

- (2) For the scrubbers listed below, Permittee shall limit the emissions of particulate matter and particulate matter with an aerodynamic diameter less than 10 microns (PM-10) to 0.02 grains/dscf and 0.01 grains/dscf respectively.

Scrubber Numbers 1, 3A, 3B, 3C, 4, 5, 6, and 8 (or)

Corresponding stack numbers 068, 032, 031, 030, 036, 037, 033, and 038 respectively (or)

Corresponding process numbers 092, 084, 083, 082, 088, 089, 085, and 090 respectively.

[Significant Revision #1001285 to Operating Permit #0325-85, Condition I.B]

b. Opacity Standard

[A.A.C. R18-2-702.B]

The opacity of emissions from any of the equipment into the atmosphere shall not be greater than 40 percent as measured by EPA Reference Method 9.

2. Affected Facilities Subject to the New Source Performance Standards (*Emission units identified as "New" in Column 8, Tables D-2 and D-3 of Attachment "D" of this permit*) Shall Comply with the Following:

a. Particulate Matter Standard

Permittee shall not cause to be discharged into the atmosphere from an affected facility any stack emissions that contain particulate matter in excess of 0.05 grams per dry standard cubic meter.

[40 CFR 60.382(a)(1)]

b. Opacity Standard

- (1) Permittee shall not cause to be discharged into the atmosphere any stack emissions that exhibit greater than 7 percent opacity, as measured by EPA Reference Method 9, unless the stack emissions are discharged from a wet scrubbing emission control device.

[40 CFR 60.382(a)(2) and A.A.C. R18-2-331]

- (2) Permittee shall not cause to be discharged into the atmosphere from an affected facility any process fugitive emissions that exhibit greater than 10 percent opacity.

[40 CFR 60.382(b) and A.A.C. R18-2-331]

B. Air Pollution Control Requirements

1. At all times, including periods of startup, shutdown, and malfunction, Permittee shall,

to the extent practicable, maintain and operate the wet scrubbers with Stack Nos. 33, 36, 68, 69, 70, and 71 associated with the Metcalf and Morenci concentrators in a manner consistent with good air pollution control practice for minimizing particulate matter emissions. [40 CFR 60.11(d) and A.A.C. R18-2-331]

2. Permittee shall operate all other wet scrubbers (not identified in Condition B.1) to capture particulate matter emissions associated with the Metcalf and Morenci concentrators. [A.A.C. R18-2-331]

3. Permittee shall install, maintain, and operate fabric filter dust collectors to control particulate matter emissions from the dust collection hoods servicing the six tertiary crushers, the transfer chutes to the No. 9 conveyor from the secondary and tertiary crushers, and the No. 9/No. 14 transfer point.

[Significant Revision #1001285 to Operating Permit #0325-85, Condition I.A & A.A.C. R18-2-331]

C. Monitoring, Recordkeeping, and Reporting Requirements

1. Affected Facilities Subject to the Standard of Performance for Existing Nonferrous Metals Industry Sources Shall Comply with the Following:

a. Initial Requirement

Within 180 days of issuance of this permit, Permittee shall conduct one certified Method 9 observation on each of the wet scrubbers covered by this section while it is operating at normal representative working conditions to establish a baseline opacity level. Within 30 days of establishing the baseline opacity, the Permittee shall report the results to the Director.

[A.A.C. R18-2-306.A.3.b]

b. Daily Monitoring Requirement

Permittee shall record the daily process rate and hours of operation of all material handling facilities.

[A.A.C. R18-2-721.F]

c. Bi-weekly Monitoring Requirement

[A.A.C. R18-2-306.A.3.b]

(1) Within 180 days of issuance of this permit, Permittee shall submit and implement a visual observation plan as approved by the Director. The observation plan shall identify a central lookout station or multiple observation points, as appropriate, from where the point and fugitive sources of emissions covered by this section shall be monitored. When multiple observation points are used, all the point and fugitive sources of emissions associated with each observation

point shall be specifically identified within the observation plan. Any changes to the approved observation plan shall be made only with the prior approval of the Director.

- (2) The certified Method 9 observer shall conduct in accordance with the observation plan a bi-weekly visual survey of visible emissions from the metallic mineral concentrating units covered by this section when they are in operation.
- (3) For Point Sources Covered by this Section
 - (a) If the observer, during the visual survey, does not see a plume from a wet scrubber that on an instantaneous basis appears to exceed the baseline level, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.
 - (b) If the observer sees a plume from a wet scrubber that on an instantaneous basis appears to exceed the baseline level, then the observer shall if practicable take a six-minute Method 9 observation of the plume.
 - (c) If the six-minute opacity of the plume exceeds the baseline level but is less than the opacity standard, Permittee shall initiate corrective action, as necessary, to reduce opacity to or below the baseline level. The Permittee shall make a record of the following:
 - i) Location, date, and time of the test; and
 - ii) The results of the Method 9 observation.
 - (d) If the six-minute opacity of the plume exceeds both the baseline level and the opacity standard, then the Permittee shall do the following:
 - i) Adjust or repair the controls or equipment to reduce opacity to or below the baseline level; and
 - ii) Report it as an excess emission for opacity.
 - (e) If the six-minute opacity of the plume is less than the baseline, the observer shall make a record of the following:
 - i) Location, date, and time of the test; and

- ii) The results of the Method 9 observation.
 - (f) If corrective actions fail to reduce opacity to or below the baseline level, the Permittee shall adopt the following course of action:
 - i) document all corrective action taken; and
 - ii) initiate procedures to re-establish the baseline within 48 hours in accordance with subsection (g).
 - (g) If necessitated by the results of the bi-weekly monitoring, Permittee may reestablish the baseline opacity level(s). Reestablishment of the baseline(s) shall be performed utilizing the same procedures used in setting up the initial baseline level(s). Within 30 days of re-establishing the baseline opacity, the Permittee shall report the results to the Director. The report shall also contain a description of the need for re-establishing the baseline(s).
- (4) For Fugitive Sources Covered by this Section
- (a) If the observer, during the visual survey, does not see any plume from any fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.
 - (b) If the observer sees a plume from a fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall if practicable take a six-minute Method 9 observation of the plume.
 - (c) If the six-minute opacity of the plume exceeds the opacity standard, Permittee shall do the following:
 - i) adjust or repair the controls or equipment to reduce opacity to below the opacity standard;
 - ii) and report it as excess emissions.
 - (d) If the six-minute opacity of the plume is less than the opacity standard, the observer shall make a record of the following:

- i) Location, date, and time of the test; and
- ii) The results of the Method 9 observation.

d. Performance Testing Requirements

[Significant Revision #1001285 to Operating Permit #0325-85, Condition I.D
and A.A.C. R18-2-306.A.3.b]

- (1) Permittee shall conduct one set of performance tests for particulate matter on the following stacks within the timeline specified in the following schedule:

Third year of permit issuance:	Stack Nos. 6, 11, 14, 15, 16, 18, and 20 (Process No 023, 028, 031, 032, 033, 035, and 037 respectively)
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EPA Reference Method 5 in 40 CFR 60, Appendix A shall be used to determine emissions of particulate matter. These performance tests shall be used to demonstrate compliance with the applicable emission limitations specified in Condition IV.A.1.

Fourth year of permit issuance:	Stack Nos. 30, 38, 40, and 42 (Process No 082, 090, 094, and 097 respectively)
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EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of particulate matter. EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M shall be used to determine the emissions of PM-10. These performance tests shall be used to demonstrate compliance with the applicable emission limitations specified in Condition IV.A.1.

- (2) Permittee shall conduct performance tests for particulate matter emissions on Stack Numbers 032 and 037 within six months of start-up of the “mine for leach” operations authorized by Significant Revision #1001285 and six months prior to expiration of this permit. EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of particulate matter. EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M shall be used to determine the emissions of PM-10. The

performance tests shall be used to demonstrate compliance with the voluntary limitation specified in Condition IV.A.1.a.(2).

- (3) Permittee shall conduct an annual performance test for opacity on each of the wet scrubbers covered by this section. These performance tests shall be conducted in accordance with Reference Method 9 in 40 CFR 60, Appendix A and procedures in 40 CFR 60.11.

2. Affected Facilities Subject to the New Source Performance Standards Shall Comply with the Following:

a. Continuous Monitoring Requirement

- (1) For each scrubber, Permittee shall calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through the scrubber. The monitoring device must be certified by the manufacturer to be accurate within ± 250 pascals (± 1 inch water) gauge pressure and must be calibrated on an annual basis in accordance with the manufacturer's instructions. [40 CFR 60.384(a) and A.A.C. R18-2-331]

- (2) For each scrubber, Permittee shall calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to the scrubber. The monitoring device must be certified by the manufacturer to be accurate within ± 5 percent of the design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with the manufacturer's instructions. [40 CFR 60.384(b) and A.A.C. R18-2-331]

b. Weekly Recording Requirement

Permittee shall record on a weekly basis the measurements of both the change in the pressure of the gas stream across the scrubbers and the scrubbing liquid flow rate. [40 CFR 60.385(b)]

c. Bi-weekly Monitoring Requirement

In accordance with Sections IV.C.1.c(1), IV.C.1.c(2), and IV.C.1.c(4) of this Attachment, Permittee shall conduct a bi-weekly visual survey of visible emissions from fugitive sources covered by this section when they are in operation. [A.A.C. R18-2-306.A.3.b]

d. Semi-annual Reporting Requirement

Permittee shall submit semi-annual reports to the Director of occurrences when the measurements of the scrubber pressure loss (or gain) and liquid flow rate differ by more than ± 30 percent from the average obtained during the most recent performance test. These reports shall be postmarked within 30 days following the end of the second and fourth calendar quarters.

[40 CFR 60.385(c) and (d)]

- e. Performance Testing Requirement [A.A.C. R18-2-306.A.3.b]

Permittee shall conduct one set of performance test(s) for particulate matter on the following stacks in accordance with the following schedule:

First year of permit issuance: Stack No. 32, 33, and 36 (Process No 084, 085, and 088 respectively)

Second year of permit issuance: Stack No. 68, 69, 70, and 71 (Process No 092, 093, 101, and 096 respectively)

These performance tests shall be conducted in accordance with Reference Method 5 or 17 in 40 CFR 60, Appendix A. Permittee shall record the change in scrubber pressure and the scrubbing liquid flow rate during the performance test.

V. Morenci Steam Power Plant

- A. Boiler Nos. 1, 2, 3, and 4 and Superheater Nos. 1 and 2

1. Opacity of Visible Emissions

- a. Emission Limitations/Standards

Permittee shall not cause, allow or permit to be emitted into the atmosphere from Boiler Nos. 1, 2, 3, and 4 and Superheater Nos. 1 and 2 smoke which exceeds 15 percent opacity. [A.A.C. R18-2-724.J]

- b. Monitoring, Recordkeeping, and Reporting Requirements

Permittee shall report all six-minute periods in which the opacity of any plume or effluent exceeds 15 percent from Boiler Nos. 1, 2, 3, and 4 and Superheater Nos. 1 and 2. [A.A.C. R18-2-724.J]

2. Particulate Matter [A.A.C. R18-2-724.C.1]

a. Emission Limitations/ Standards

Permittee shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from Boiler Nos. 1, 2, 3, and 4 and Superheater Nos. 1 and 2 in excess of the amount calculated by the following equation:

$$E = 1.02 Q^{0.769} \quad \text{where:}$$

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

Q = the heat input in million Btu per hour.

3. Nitrogen oxides

a. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b and A.R.S. 49-422]

(1) Dates and Hours of Operation

Permittee shall record the dates and hours of operation of each boiler. Performance test shall be triggered for each boiler according to the following schedule:

(a) Boiler Nos. 1, 2, and 3

Performance test shall be considered to be triggered for a unit when that unit has been operated for 2950 hours on a twelve month rolling total basis.

(b) Boiler No. 4

Performance test shall be considered to be triggered for the unit when the unit has been operated for 3175 hours on a twelve month rolling total basis.

(2) Permittee shall submit the following information:

(a) The dates and hours of operation of each boiler for the period of each compliance certification.

(b) Until a performance test pursuant to Section IV.A.3.a(3) of this Attachment is completed, Permittee shall report the

status of the testing requirements.

[A.A.C. R18-2-306.A.5]

(3) Testing Requirements

- (a) Permittee shall conduct one set of performance tests on Boiler Nos. 1, 2, and 3 for nitrogen oxides based on the schedule given in Section V.A.3.a(1)(a) of this Attachment within six months of the trigger date.
- (b) Permittee shall conduct one set of performance tests on Boiler No. 4 for nitrogen oxides based on the schedule given in Section V.A.3.a(1)(b) of this Attachment within six months of the trigger date.
- (c) Permittee shall use USEPA Reference Method 7 to conduct the performance test for nitrogen oxides as specified in the Arizona Testing Manual for Air Pollutant Emissions.

4. Fuel Limitation

Permittee shall burn only natural gas as fuel in Boiler Nos. 1, 2, 3, and 4 and Superheater Nos. 1 and 2.

[A.A.C. R18-2-306.A.2]

VI. Metcalf Combined Cycle Power Plant

A. Steam Unit 1/Combined Cycle Operation of Steam Unit 1 and Gas Turbine No. 1 and Steam Unit 2/Combined Cycle Operation of Steam Unit 2 and Gas Turbine No. 2

1. Opacity of Visible Emissions

a. Emission Limitations/Standards

Permittee shall not cause, allow or permit to be emitted into the atmosphere any plume or effluent the opacity of which exceeds 15 percent.

[A.A.C.R18-2-724.J]

b. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

(1) Monitoring Requirements for Visible Emissions while Burning Diesel

- (a) Permittee shall monitor opacity according to the following schedule:

- i) If diesel is combusted in the unit continuously for a time period greater than 48 hours but less than 168 hours, at least one opacity reading will be observed at the exit of the unit's stack.
 - ii) If diesel is combusted in the unit continuously for a time period greater than 168 hours, at least one six-minute opacity reading will be observed during each consecutive 168-hour period at the exit of the unit's stack.
- (b) All opacity readings will be observed in accordance with EPA Reference Method 9. Permittee shall log in ink or in an electronic format and maintain a record of the opacity readings from above.
- (c) Permittee shall monitor and record the number of hours fuel oil is burned continuously.
- (2) Permittee shall report all six-minute periods in which the opacity of any plume or effluent exceeds 15 percent from Steam Unit 1 or 2.
[A.A.C. R18-2-724.J]

2. Particulate Matter

a. Emission Limitations/Standards

- (1) Permittee shall not cause, allow or permit the emission of particulate matter in excess of the amounts calculated by the following equation:

$$E = 1.02 Q^{0.769}$$

E = the maximum allowable particulate matter emissions rate in pounds-mass per hour

Q = the heat input in million Btu per hour

[A.A.C. R18-2-724.C.1]

- (2) Definition of heat input

- (a) For the purposes of condition V.A.2.a(1) above, "heat input" is defined as the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet.

- (b) The total heat input from the burning of all fuels in Steam Unit No. 1 or 2 shall be computed as follows:

$$TotalHeatInput = \sum_{j=1}^n \sum_{i=1}^k (NHV_{ij})x(U_{ij})$$

Where:

NHV_i = Net heating value of each fuel “i” at standard temperature and pressure fired in each unit “j”; and

U_i = Fuel firing rate of each fuel “i” in each unit “j”. [A.A.C. R18-2-724.B]

- (c) The total heat input from the burning of all fuels during combined cycle operations of Steam Unit 1/Gas Turbine 1 and Steam Unit 2/Gas Turbine 2 shall be computed as follows:

$$TotalHeatInput = \sum_{j=1}^n \sum_{i=1}^k (NHV_{ij})x(U_{ij})$$

NHV_i = Net heating value of each fuel “i” at standard temperature and pressure fired in each unit “j” forming the combined cycle operation; and

U_i = Fuel firing rate of each fuel “i” in each unit “j”. [A.A.C. R18-2-306.A.2]

b. Monitoring, Recordkeeping, and Reporting Requirements

(1) Monitoring Requirements while Burning Diesel

Permittee shall keep on record the contractual agreement with the liquid fuel vendor indicating the following information concerning diesel being fired:

- (a) The name of the diesel supplier;

- (b) The heating value of diesel;
- (c) The ash content of diesel; and
- (d) The method used to determine the ash content of diesel.

[A.A.C. R18-2-306.A.3.b]

3. Sulfur Dioxide

a. Emission Limitations/Standards

- (1) Permittee shall not cause, allow, or permit emissions of more than 1.0 pound sulfur dioxide maximum three hour average per million BTU heat input when burning diesel. [A.A.C.R18-2-724.E]

- (2) Permittee shall not use high sulfur oil (fuel sulfur content \geq 0.90% by weight) as a fuel unless the Permittee demonstrates to the satisfaction of the Director that sufficient quantities of low sulfur oil are not available for use by the source and that it has adequate facilities and contingency plans to insure that the sulfur dioxide ambient air quality standards set forth in A.A.C. R18-2-202 will not be violated. [A.A.C.R18-2-724.G]

- (3) Definition of Heat Input

For the purposes of condition V.A.3.a(1) above, permittee shall use the definition of heat input given under condition V.A.2.a(2) of this Attachment.

b. Monitoring, Recordkeeping, and Reporting Requirements

- (1) Monitoring Requirements while Burning Diesel

- (a) Permittee shall keep on record the contractual agreement with the liquid fuel vendor indicating the following information concerning diesel being fired:

- i) The name of the diesel supplier;
- ii) The heating value of diesel;
- iii) The density of diesel;
- iv) The sulfur content of diesel from which the shipment came; and
- v) The method used to determine the sulfur content of diesel.

[A.A.C. R18-2-306.A.3.b]

- (b) Permittee shall maintain records of all emissions calculations performed for any change in (ii), (iii), or (iv) above using the following equation:

$$\text{SO}_2 \text{ (lb/MMBtu)} = \frac{2.0 \times [(\text{Weight percent of sulfur in Diesel}/100) \times \text{Density of Diesel (lb/gal)}]}{[(\text{Heating value (Btu/gal)}) \times (1 \text{ MMBtu}/1,000,000 \text{ Btu})]}$$

[A.A.C. R18-2-306.A.3.b]

4. Nitrogen oxides

a. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b and A.R.S. 49-422]

(1) Dates and Hours of Operation

Permittee shall record the dates and hours of operation of each steam unit. Performance test shall be triggered for each steam unit according to the following schedule:

(a) Steam Unit 1

Performance test shall be considered to be triggered for the unit when the unit has been operated individually for 2950 hours on a twelve month rolling total basis. This does not include the time when the unit is operated in a combined cycle mode.

(b) Steam Unit 2

Performance test shall be considered to be triggered for the unit when the unit has been operated individually for 3175 hours on a twelve month rolling total basis. This does not include the time when the unit is operated in a combined cycle mode.

(2) Permittee shall submit the following information:

(a) The dates and hours of operation of each steam unit for the period of each compliance certification.

(b) Until a performance test pursuant to Section V.A.4.a(3) of this Attachment is completed, Permittee shall report the

status of the testing requirements.

[A.A.C. R18-2-306.A.5]

(3) Testing Requirements

- (a) Permittee shall conduct one set of performance tests on Steam Unit 1 for nitrogen oxides based on the schedule given in Section VI.A.4.a(1)(a) of this Attachment within six months of the trigger date.
- (b) Permittee shall conduct one set of performance tests on Steam Unit 2 for nitrogen oxides based on the schedule given in Section VI.A.4.a(1)(b) of this Attachment within six months of the trigger date.
- (c) Permittee shall use USEPA Reference Method 7 to conduct the performance test for nitrogen oxides as specified in the Arizona Testing Manual for Air Pollutant Emissions.

5. Fuel Limitation

[A.A.C. R18-2-306.A.2]

- a. Permittee shall burn only the following as fuel in Steam Unit Nos. 1 and 2:
 - (1) Natural gas; or
 - (2) Diesel.
- b. Permittee shall burn only the following as fuel during combined cycle operations of Steam Unit 1/Gas Turbine 1 and Steam Unit 2/Gas Turbine 2:
 - (1) Gas Turbine Nos. 1 and 2
 - (a) Natural gas; or
 - (b) Diesel.
 - (2) Steam Unit Nos. 1 and 2
 - (a) Natural gas; or
 - (b) Diesel.
- c. Permittee shall log in ink or in an electronic format a record of any change in fuel type including:
 - (1) Type of fuel change;
 - (2) Date of the fuel change; and

(3) Time of the fuel change.

[A.A.C. R18-2-306.A.13]

B. Gas Turbine Nos. 1 and 2

1. Opacity of Visible Emissions

a. Emission Limitations/Standards

Permittee shall not cause, allow or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period of time greater than ten consecutive seconds which exceeds 40 percent opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.

[A.A.C. R18-2-719.E]

b. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

(1) Monitoring Requirements for Visible Emissions while Burning Diesel

(a) Permittee shall monitor opacity according to the following schedule:

i) If diesel is combusted in the unit continuously for a time period greater than 48 hours but less than 168 hours, at least one opacity reading will be observed at the exit of the unit's stack.

ii) If diesel is combusted in the unit continuously for a time period greater than 168 hours, at least one six-minute opacity reading will be observed during each consecutive 168-hour period at the exit of the unit's stack.

(b) All opacity readings will be observed in accordance with EPA Reference Method 9. Permittee shall log in ink or in an electronic format and maintain a record of the opacity readings from above.

(c) Permittee shall monitor and record the number of hours fuel oil is burned continuously.

2. Particulate Matter

a. Emission Limitations/Standards

- (1) Permittee shall not cause, allow, or permit the emission of particulate matter, caused by combustion of fuel, from any of the stacks of stationary rotating machinery in excess of the amounts calculated by the following equation:

$$E = 1.02 Q^{0.769} \text{ where:}$$

E= the maximum allowable particulate emissions rate in pounds-mass per hour.

Q= the heat input in million Btu per hour.

[A.A.C. R18-2-719.C]

- (2) Definition of Heat Input

- (a) For the purposes of condition VI.B.2.a(1) above, “heat input” is defined as the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. Compliance tests shall be conducted during operation at the nominal rated capacity of each unit.

[A.A.C. R18-2-719.B]

- (b) The total heat input from the burning of all fuels shall be computed as follows:

$$TotalHeatInput = \sum_{j=1}^n \sum_{i=1}^k (NHV_{i,j}) x (U_{i,j})$$

Where:

NHV_i = Net heating value of each fuel “i” at standard temperature and pressure fired in each unit “j”; and

U_i = Fuel firing rate of each fuel “i” in each unit “j”.

[A.A.C. R18-2-719.B]

b. Monitoring, Recordkeeping, and Reporting Requirements

- (1) Monitoring Requirements while Burning Diesel

Permittee shall keep on record the contractual agreement with the liquid fuel vendor indicating the following information concerning

diesel being fired:

- (a) The name of the diesel supplier;
- (b) The heating value of diesel;
- (c) The ash content of diesel; and
- (d) The method used to determine the ash content of diesel.

[A.A.C. R18-2-306.A.3.b]

3. Sulfur Dioxide

a. Emission Limitations/Standards

- (1) Permittee shall not cause, allow, or permit emissions of more than 1.0 pounds of sulfur dioxide per million Btu heat input while burning diesel.

[A.A.C. R18-2-719.F]

- (2) Permittee shall not use high sulfur oil (fuel sulfur content \geq 0.90% by weight) as a fuel unless the Permittee demonstrates to the satisfaction of the Director that sufficient quantities of low sulfur oil are not available for use by the source and that it has adequate facilities and contingency plans to insure that the sulfur dioxide ambient air quality standards set forth in A.A.C. R18-2-202 will not be violated.

[A.A.C. R18-2-719.H]

- (3) Definition of Heat Input

For the purposes of condition VI.B.3.a(1) above, permittee shall use the definition of heat input given under condition VI.B.2.a(2) of this Attachment.

b. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-719.I]

- (1) Monitoring Requirements While Burning Gaseous Fuel

Permittee shall maintain a vendor-provided copy of that part of the Federal Energy Regulatory Commission (FERC)-approved Tariff agreement that contains the sulfur content and the lower heating value of the pipeline quality natural gas.

- (2) Monitoring Requirements While Burning Diesel

Permittee shall keep records of fuel supplier certification including

the following information:

- (a) The name of the diesel supplier;
- (b) The sulfur content and the heating content of diesel from which the shipment came; and
- (c) The method used to determine the sulfur content of the diesel.

Permittee shall maintain records of all emissions calculations performed for any change in (b) above using the following equation:

$$\text{SO}_2 \text{ (lb/MMBtu)} = 2.0 \times [(\text{Weight percent of sulfur in Diesel}/100) \times \text{Density of Diesel (lb/gal)}]/[(\text{Heating value (Btu/gal)}) \times (1 \text{ MMBtu}/1,000,000 \text{ Btu})]$$

- (3) Permittee shall report to the Director any daily period during which the sulfur content of the fuel being fired in Gas Turbine Nos. 1 or 2 exceeds 0.8 percent. [A.A.C. R18-2-719.J]

4. Nitrogen oxides

a. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b and A.R.S. 49-422]

(1) Dates and Hours of Operation

Permittee shall record the dates and hours of operation of each gas turbine. Performance test shall be triggered for each gas turbine according to the following schedule:

- (a) Gas Turbine Nos. 1 and 2

Performance test shall be considered to be triggered for a unit when that unit has been operated for 1825 hours on a twelve month rolling total basis. This does not include the time when a unit is operated in a combined cycle mode.

(2) Permittee shall submit the following information:

- (a) The dates and hours of operation of each gas turbine for the period of each compliance certification.

- (b) Until a performance test pursuant to Section VI.B.4.a(3) of this Attachment is completed, Permittee shall report the status of the testing requirements.

[A.A.C. R18-2-306.A.5]

(3) Testing Requirements

- (a) Permittee shall conduct one set of performance tests on Gas Turbine Nos. 1 and 2 for nitrogen oxides and carbon monoxide based on the schedule given in Section VI.B.4.a(1)(a) of this Attachment within six months of the trigger date.
- (b) Permittee shall use USEPA Reference Methods 20 and 10 to conduct the performance test for nitrogen oxides and carbon monoxide respectively as specified in the Arizona Testing Manual for Air Pollutant Emissions.

5. Fuel Limitation

[A.A.C. R18-2-306.A.2]

- a. Permittee shall burn only the following as fuel in Gas Turbine Nos. 1 and 2:
 - (1) Natural gas; or
 - (2) Diesel.

VII. Southwest Lime Plant

A. Emission Limitations/Standards

1. Particulate Matter Standard

[A.A.C. R18-2-730.A.1.b]

Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere in any one hour from any process source in total quantities in excess of the amount calculated by the following equation:

$$E = 55.0P^{0.11} - 40$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour
P = the process weight rate in tons-mass per hour.

2. Opacity Standard

[A.A.C. R18-2-702.B]

The opacity of emissions from any of the equipment into the atmosphere shall not be greater than 40 percent as measured by EPA Reference Method 9.

B. Air Pollution Control Requirements

Permittee shall operate the wet scrubber, the baghouse, misters, foggers, and ADS systems to capture particulate matter emissions associated with the Southwest Lime Plant.

[A.A.C.R18-2-331]

C. Monitoring, Recordkeeping, and Reporting Requirements

1. Initial Requirement

Within 180 days of issuance of this permit, Permittee shall conduct one certified Method 9 observation on the wet scrubber and the baghouse at the Southwest Lime Plant while it is operating at normal representative working conditions to establish a baseline opacity level. Within 30 days of establishing the baseline opacity, the Permittee shall report the results to the Director.

[A.A.C. R18-2-306.A.3.b]

2. Daily Monitoring Requirement

Permittee shall record the daily production rate of the Southwest Lime Plant.

[A.A.C. R18-2-306.A.3.b]

3. Bi-weekly Monitoring Requirement

[A.A.C. R18-2-306.A.3.b]

a. The certified Method 9 observer shall conduct a bi-weekly visual survey of visible emissions from the Southwest Lime Plant when it is in operation.

b. For Point Sources Covered by this Section

(1) If the observer, during the visual survey, does not see a plume from the wet scrubber or baghouse that on an instantaneous basis appears to exceed the baseline level, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.

(2) If the observer sees a plume from the wet scrubber or baghouse that on an instantaneous basis appears to exceed the baseline level, then the observer shall if practicable take a six-minute Method 9 observation of the plume.

- (3) If the six-minute opacity of the plume exceeds the baseline level but is less than the opacity standard, Permittee shall initiate corrective action, as necessary, to reduce opacity to or below the baseline level.
- (4) If the six-minute opacity of the plume exceeds both the baseline level and the opacity standard, then the Permittee shall do the following:
 - (a) Adjust or repair the controls or equipment to reduce opacity to or below the baseline level; and
 - (b) Report it as an excess emission for opacity.
- (5) If the six-minute opacity of the plume is less than the baseline, the observer shall make a record of the following:
 - (a) Location, date, and time of the test; and
 - (b) The results of the Method 9 observation.
- (6) If corrective actions fail to reduce opacity to or below the baseline level, the Permittee shall adopt the following course of action:
 - (a) document all corrective action taken; and
 - (b) initiate procedures to re-establish the baseline within 48 hours in accordance with subsection (7).
- (7) If necessitated by the results of the bi-weekly monitoring, Permittee may reestablish the baseline opacity level(s). Reestablishment of the baseline(s) shall be performed utilizing the same procedures used in setting up the initial baseline level(s). Within 30 days of re-establishing the baseline opacity, the Permittee shall report the results to the Director. The report shall also contain a description of the need for re-establishing the baseline(s).

c. For Fugitive Sources Covered by this Section

- (1) If the observer, during the visual survey, does not see any plume from any fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.
- (2) If the observer sees a plume from a fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall if practicable take a six-minute Method 9 observation

of the plume.

- (3) If the six-minute opacity of the plume exceeds the opacity standard, Permittee shall do the following:
 - (a) adjust or repair the controls or equipment to reduce opacity to below the opacity standard;
 - (b) and report it as excess emissions.
- (4) If the six-minute opacity of the plume is less than the opacity standard, the observer shall make a record of the following:
 - (a) Location, date, and time of the test; and
 - (b) The results of the Method 9 observation.

4. Performance Testing Requirements [A.A.C. R18-2-306.A.3.b]

Permittee shall conduct an annual performance test for opacity on the wet scrubber and the baghouse. These performance tests shall be conducted in accordance with Reference Method 9 in 40 CFR 60, Appendix A.

VIII. Solution Extraction/Electrowinning (SX/EW) Process System

A. SX/EW Plant

1. Emission Limitations/Standards

- a. Permittee shall not cause the emission of gaseous or odorous materials from equipment and operations associated with the SX/EW process in such quantities or concentrations as to cause air pollution. [A.A.C. R18-2-730.D]
- b. Materials including solvents or other volatile compounds, acids, and alkalis utilized in the SX/EW process shall be processed, stored, used, and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise be discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory. [A.A.C. R18-2-730.F]
- c. Where a stack, vent or other outlet is at such a level that fumes, gas, mist, odor, smoke, vapor, or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent or other outlet by

the Permittee thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to the adjoining property.

[A.A.C. R18-2-730.G]

2. Air Pollution Control Requirements

[A.A.C. R18-2-306.A.2 and 331]

- a. Permittee shall maintain and use the covers on the mixer settler tanks to control emissions from the Solution Extraction Plant.
- b. Permittee shall use one or more of the following methods to control emissions from the Electrowinning Tankhouse:
 - (1) Foam;
 - (2) Blankets;
 - (3) Surfactants;
 - (4) Brushes;
 - (5) Thermal retention balls; or
 - (6) Other effective means of controlling sulfuric acid emissions approved by the Director.

3. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

Permittee shall maintain a record of the control measures used at the SX/EW plant.

B. SX/EW Boilers

1. Hot Water Heater Nos. 1 through 5

a. Opacity of Visible Emissions

(1) Emission Limitations/Standards

Permittee shall not cause, allow or permit to be emitted into the atmosphere from Hot Water Heater Nos. 1 through 5 smoke which exceeds 15 percent opacity.

[A.A.C. R18-2-724.J]

(2) Monitoring, Recordkeeping, and Reporting Requirements

Permittee shall report all six-minute periods in which the opacity of any plume or effluent exceeds 15 percent from Hot Water Heater Nos. 1 through 5.

[A.A.C. R18-2-724.J]

b. Particulate Matter

[A.A.C. R18-2-724.C.1]

(1) Emission Limitations/ Standards

Permittee shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from Hot Water Heater Nos. 1 through 5 in excess of the amount calculated by the following equation:

$$E = 1.02 Q^{0.769}$$

where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

Q = the heat input in million Btu per hour.

c. Fuel Limitation [A.A.C. R18-2-306.A.2]

Permittee shall burn only natural gas as fuel in Hot Water Heater Nos. 1 through 5. [A.A.C. R18-2-306.A.2]

2. Small Industrial Boilers 1, 2, 3, 4, and 5

a. Emission Limitations/Standards

Permittee shall burn only natural gas as fuel in Boiler Nos. 1, 2, 3, 4, and 5. [A.A.C. R18-2-306.A.2]

b. Monitoring, Recordkeeping, and Reporting Requirements

Permittee shall record the amount of fuel combusted during each day. This may be complied with by maintaining a record of the monthly natural gas purchase bills. [40 CFR 60.48c(G) and A.A.C. R18-2-306.A.2]

IX. Tank Farm Gasoline Tank Nos. G1, G2, and G3

Permittee shall equip Gasoline Tank Nos. G1, G2, and G3 with a submerged filling device, or acceptable equivalent, for the control of hydrocarbon emissions. [A.A.C. R18-2-710.B]

X. Diesel Generator SU-46

A. Opacity of Visible Emissions

1. Emission Limitations/Standards

Permittee shall not cause, allow or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period of time greater than ten consecutive seconds which exceeds 40 percent opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.

[A.A.C. R18-2-719.E]

a. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

(1) Monitoring Requirements for Visible Emissions while Burning Diesel

(a) Permittee shall monitor opacity according to the following schedule:

- i) If diesel is combusted in the unit continuously for a time period greater than 48 hours but less than 168 hours, at least one opacity reading will be observed at the exit of the unit's stack.
- ii) If diesel is combusted in the unit continuously for a time period greater than 168 hours, at least one six-minute opacity reading will be observed during each consecutive 168-hour period at the exit of the unit's stack.

(b) All opacity readings will be observed in accordance with EPA Reference Method 9. Permittee shall log in ink or in an electronic format and maintain a record of the opacity readings from above.

(c) Permittee shall monitor and record the number of hours fuel oil is burned continuously.

B. Particulate Matter

1. Emission Limitations/Standards

Permittee shall not cause, allow, or permit the emission of particulate matter, caused by combustion of fuel, from any of the stacks of stationary rotating machinery in excess of the amounts calculated by the following equation:

$$E = 1.02 Q^{0.769}$$

where:

E= the maximum allowable particulate emissions rate in pounds-mass per hour.
Q= the heat input in million Btu per hour.

[A.A.C. R18-2-719.C]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. Monitoring Requirements while Burning Diesel

Permittee shall keep on record the contractual agreement with the liquid fuel vendor indicating the following information concerning diesel being fired:

- (1) The name of the diesel supplier;
- (2) The heating value of diesel;
- (3) The ash content of diesel; and
- (4) The method used to determine the ash content of diesel.

[A.A.C. R18-2-306.A.3.b]

C. Sulfur Dioxide

1. Emission Limitations/Standards

- a. Permittee shall not cause, allow, or permit emissions of more than 1.0 pounds of sulfur dioxide per million Btu heat input while burning diesel.

[A.A.C. R18-2-719.F]

- b. Permittee shall not use high sulfur oil (fuel sulfur content $\geq 0.90\%$ by weight) as a fuel unless the Permittee demonstrates to the satisfaction of the Director that sufficient quantities of low sulfur oil are not available for use by the source and that it has adequate facilities and contingency plans to insure that the sulfur dioxide ambient air quality standards set forth in A.A.C. R18-2-202 will not be violated.

[A.A.C. R18-2-719.H]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. Monitoring Requirements While Burning Diesel

[A.A.C. R18-2-719.I]

Permittee shall keep records of fuel supplier certification including the following information:

- (1) The name of the diesel supplier;
- (2) The sulfur content and the heating content of diesel from which the shipment came; and

- (3) The method used to determine the sulfur content of the diesel.

Permittee shall maintain records of all emissions calculations performed for any change in (2) above using the following equation:

$$\text{SO}_2 \text{ (lb/MMBtu)} = 2.0 \times [(\text{Weight percent of sulfur in Diesel}/100) \times \text{Density of Diesel (lb/gal)}]/[(\text{Heating value (Btu/gal)}) \times (1 \text{ MMBtu}/1,000,000 \text{ Btu})]$$

- b. Permittee shall report to the Director any daily period during which the sulfur content of the fuel being fired in Diesel Generator SU-46 exceeds 0.8 percent.
[A.A.C. R18-2-719.J]

D. Fuel Limitation [A.A.C. R18-2-306.A.2]

Permittee shall burn only diesel as fuel in Diesel Generator SU-46.

XI. Non-Point Sources

A. Open Areas, Roadways and Streets, Material Handling, Storage Piles, and Mineral Tailings

1. Opacity and Particulate Matter Standards

a. Emission Limitations/Standards

- (1) Permittee shall not cause, allow or permit visible emissions from open areas, roadways and streets, storage piles or material handling in excess of 40 % opacity measured in accordance with the Arizona Testing Manual, Reference Method 9.

[A.A.C.R18-2-610]

- (2) Permittee shall employ at least one of the following reasonable precautions, or any other method as proposed by the Permittee and approved by the Director (following compliance with any applicable air permit revision mechanism) , to prevent excessive amounts of particulate matter from becoming airborne:

- (a) Use dust suppressants or soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, or barring access when constructing, using, altering, repairing, demolishing, clearing, or leveling a building or its appurtenances, a driveway, a parking area, or a vacant lot, or when moving or excavating earth.

In addition to the above, the following have been identified as reasonable precautions:

Applying wetting agents, stemming, optimizing blast pattern, controlling oxygen balance of explosives during blast operations, minimize material drop height, temporary paving, road cover, controlling vehicle access, limiting vehicle speed, revegetation, hydro-seeding, hydro-mulching, mulching, wet sweeping, vacuuming, wind fence, wind break, shrouding, skirting, enclosing, contouring, animals, soil adhesives, compaction, agglomeration, inherent moisture content, and encrustation.

[A.A.C.R18-2-604.A]

- (b) Apply temporary paving, dust suppressants, wetting down, or detouring when using, repairing, constructing or reconstructing a roadway.

In addition to the above, the following have been identified as reasonable precautions:

Applying wetting agents, controlling vehicle access, limiting vehicle speed, revegetation, hydro-seeding, hydro-mulching, mulching, landscaping, wet sweeping, vacuum, wind fence, wind break, covering, contouring, usage of soil adhesives, usage of soil stabilizers, compaction, usage of decomposed granite, agglomeration, inherent moisture content, and encrustation.

[A.A.C.R18-2-605.A]

- (c) Apply dust suppressants, wetting, or cover the load when transporting materials likely to give rise to airborne dust.

In addition to the above, the following have been identified as reasonable precautions:

Applying wetting agents, minimizing material drop height, limiting vehicle speed, wind break, covering, agglomeration, inherent moisture content, and encrustation.

[A.A.C.R18-2-605.B]

- (d) Use spray bars, wetting, wetting agents, dust suppressants, covers, or hoods when crushing, screening, handling,

transporting, or conveying material that is likely to result in significant amounts of airborne dust;

[A.A.C.R18-2-606]

In addition to the above, the following have been identified as reasonable precautions:

Minimizing material drop height, wind fence, wind break, shrouding, skirting, enclosing, contouring, and agglomeration.

- (d) Use chemical stabilization, wetting, or covering when stacking, piling or otherwise storing organic or inorganic dust-producing material.

In addition to the above, the following have been identified as reasonable precautions:

Wind fence, wind break, shrouding, skirting, enclosing, covering, contouring, agglomeration, inherent moisture content, and encrustation.

[A.A.C.R18-2-607.A]

- (e) Operate stacking and reclaiming machinery utilized at storage piles at all times with a minimum fall of material and in such manner, or with the use of spray bars and wetting agents;

In addition to the above, the following have been identified as reasonable precautions:

Wetting, wind fence, wind break, shrouding, skirting, enclosing, covering, contouring, inherent moisture content, and agglomeration.

[A.A.C.R18-2-607.B]

- (f) Use wetting, chemical stabilization, or revegetation when constructing mineral tailing piles;

In addition to the above, the following have been identified as reasonable precautions:

Applying wetting agents, maximizing the wet surface area, barring or controlling vehicle access, limiting vehicle speed, hydro-seeding, hydro-mulching, mulching, landscaping, wind fence, wind break, covering, contouring, animals, soil

adhesives, soil stabilizers, compaction, usage of decomposed granite, agglomeration, inherent moisture content, and encrustation.

[A.A.C. R18-2-608]

- (g) Use wetting agents or dust suppressants before the cleaning of any site, roadway, or alley. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by other means;

In addition to the above, the following have been identified as reasonable precautions:

Wetting, chip seal, gravel, temporary paving, controlling vehicle access, limiting vehicle speed, revegetation, inherent moisture content, and hydro-seeding.

[A.A.C.R18-2-804.B]

b. Monitoring, Reporting, and Recordkeeping Requirements

[A.A.C R18-2-306.A.3.b]

- (1) Permittee shall maintain records of the dates on which any of the activities listed in Condition XI.A.1.a.(2)(a) through (g) of this Attachment were performed and control measures employed.
- (2) In lieu of Condition XI.A.1.(b).(1), the Permittee may maintain a Non-Point Source Monitoring Plan as a means of monitoring and recordkeeping for any of the activities listed in Condition XI.A.1.a.(2)(a) through (g) of this Attachment.
 - (a) If the Non-Point Source Monitoring Plan has not been submitted to the Director as part of the Class I application form, the Permittee may submit a significant revision pursuant to AAC R18-2-320 stating an intent to rely on a Non-Point Source Monitoring Plan. The Non-Point Source Monitoring Plan shall be submitted with the Significant Revision application.
 - (b) The Non-Point Source Monitoring Plan shall describe the methods the Permittee will use to comply with the requirements of this Section. The plan shall contain the following minimum elements of information :
 - i) Types of control measures employed on an activity-

- specific basis;
 - ii) Frequency of application of control measures;
 - iii) A system for documenting variations from the strategy outlined in the Non-Point Source Monitoring Plan
- (c) If the Permittee relies on “inherent moisture content” as a reasonable precaution for minimizing particulate emissions caused by traffic over haul roads, the dates of the period for which this control measure was used shall be recorded.
- (d) Permittee may add any method listed in Conditions XI.A.1.a.(2)(a) through (g) to the list of control methods identified in the Non Point Source Monitoring Plan. Such changes to the plan shall be recorded, and a notification shall be sent to the Director within 10 days following the change. In addition, Permittee may add any method approved hereafter by the Director pursuant to Condition XI.A.1.a.(2) to the list of control methods identified in the Non Point Source Monitoring Plan by complying with the applicable permitting mechanism if a permit revision is required, and in any other case by recording the change, and providing a notification to the Director within 10 days following the change.

(3) Bi-weekly Monitoring Requirement

- (a) Within 90 days of issuance of this permit, Permittee shall submit a visual observation plan to be approved by the Department. The observation plan shall identify a central lookout station or multiple observation points, as appropriate, from where the non point sources shall be monitored. When multiple observation points are used, all the non point sources associated with each observation point shall be specifically identified within the observation plan.
- (b) The certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the non-point sources when they are in operation in accordance with the observation plan. Permittee shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.
- (c) If the observer sees a plume from a non-point source that on an instantaneous basis appears to exceed 40%, then the

observer, shall if practicable, take a six-minute Method 9 observation of the plume.

- (d) If the six-minute opacity of the plume is less than 40%, the observer shall make a record of the following:
 - i) Location, date, and time of the observation; and
 - ii) The results of the Method 9 observation.
- (e) If the six-minute opacity of the plume exceeds 40%, then the Permittee shall do the following:
 - i) Adjust or repair the controls or equipment to reduce opacity to below 40%; and
 - ii) Report it as an excess emission under Section XII.A of Attachment “A”.
- (f) Any changes to the observation plan, originally approved by the Department, shall be made only with the prior approval of the Director.

[A.A.C. R18-2-306.A.3.b]

B. Open Burning

- 1. Emission Limitations/Standards [A.A.C.R18-2-602]

Except as provided in A.A.C. R18-2-602.C(1), C(3), and C(4), and except when permitted to do so by either ADEQ or the local officer delegated the authority for issuance of open burning permits the Permittee shall not conduct open burning.

- 2. Monitoring, Recordkeeping, and Reporting Requirements

Permittee shall maintain copies of all open burning permits readily available for inspection on file.

XII. Concrete Batch Plant

- A. Fugitive dust from the Ross Boss concrete batch plant shall be controlled in accordance with applicable portions of Section XI.A of this Attachment. [A.A.C. R18-2-723]
- B. Opacity of the emissions from the Ross Boss concrete batch plant shall not be greater than 40 percent measured in accordance with the Reference Method 9 in 40 CFR 60, Appendix A. [A.A.C. R18-2-702.B]

XIII. Mine Portable Grizzly (Process No. 189)

A. Opacity of Visible Emissions

Emission Limitations/Standards

Opacity of the emissions from the portable grizzly shall not be greater than 40 percent measured in accordance with the Reference Method 9 in 40 CFR 60, Appendix A.

[A.A.C. R18-2-702.B]

B. Particulate Matter Standard

1. Emission Limitations/Standards

- a. Permittee shall not cause, allow, or permit the emission of particulate matter into the atmosphere in any one hour from the portable grizzly in excess of the amount calculated by the following equation:

$$E = 55.0P^{0.11} - 40$$

Where:

E = the maximum allowable particulate matter emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour.

[A.A.C. R18-2-721.B.2]

- b. Permittee shall not use the portable grizzly for more than 1440 hours per year when it is used on a stand alone basis. This does not include the time when the grizzly is being used to replace or supplement the IPCC crushers.

2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

Permittee shall log in ink or in an electronic format the following:

- a. The dates on which the grizzly is operated on a stand alone basis;
- b. the number of hours the portable grizzly is operated; and
- c. the daily process rate of the grizzly when in operation.

[A.A.C. R18-2-721.F]

XIV. Pumps and Compressors for Existing Storage Vessels for Petroleum Liquids

[A.A.C. R18-2-710.D]

Permittee shall equip all pumps and compressors that handle volatile organic compounds with mechanical seals or other equipment of equal efficiency to prevent the release of organic contaminants into the atmosphere.

XV. Other Periodic Activities

A. Abrasive Blasting

1. Opacity of Visible Emissions

- a. Permittee shall not cause, allow or permit visible emissions from sandblasting or other abrasive blasting operations in excess of 40% opacity as measured by EPA Reference Method 9. [A.A.C. R18-2-702.B]
- b. The Permittee shall not cause or allow sandblasting or other abrasive blasting without minimizing dust emissions to the atmosphere through the use of good modern practices. Good modern practices include:
 - (1) wet blasting; and
 - (2) effective enclosures with necessary dust collecting equipment. [A.A.C. R18-2-726]

2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

- a. Each time an abrasive blasting project is conducted, the Permittee shall log in ink or in an electronic format, a record of the following:
 - (1) The date the project was conducted;
 - (2) The duration of the project; and
 - (3) Type of control measures employed.
- b. In lieu of Condition XV.A.2.a, the Permittee may maintain a section called "Abrasive Blasting Plan" within the Non-Point Source Monitoring Plan referenced in Condition XI.A.1.b.(2), (a) through (c).

B. Use of Paints

1. Opacity of Visible Emissions

Emission Limitations/Standards

A visible plume or effluent from spray painting operations shall not have an opacity

greater than 40%, measured in accordance with by EPA Reference Method 9.

[A.A.C.R18-2-702.B]

2. Volatile Organic Compounds

a. Emission Limitations/Standards

While performing spray painting operations the Permittee shall comply with the following requirements:

- (1) The Permittee shall not conduct any spray painting operation without minimizing organic solvent emissions. Such operations other than architectural coating and spot painting, shall be conducted in an enclosed area equipped with controls containing no less than 96 percent of the overspray.

[A.A.C.R18-2-727.A]

- (2) The Permittee shall not either:

- (a) Employ, apply, evaporate or dry any architectural coating containing photochemically reactive solvents for industrial or commercial purposes; or
- (b) Thin or dilute any architectural coating with a photochemically reactive solvent.

[A.A.C.R18-2-727.B]

- (3) For the purposes of parts (2) and (5) of this condition, a photochemically reactive solvent shall be any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified in paragraphs (a) through (c) of this subsection, or which exceeds any of the following percentage composition limitations, referred to the total volume of solvent:

- (a) A combination of the following types of compounds having an olefinic or cyclo-olefinic type of unsaturation - hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones : five percent
- (b) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: eight percent
- (c) A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent

[A.A.C.R18-2-727.C]

- (4) Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than

one of the groups or organic compounds described in subsection (3)(a) through (3)(c) of this condition, it shall be considered to be a member of the group having the least allowable percent of the total volume of solvents. [A.A.C.R18-2-727.D]

- (5) The Permittee shall not dispose by evaporation more than 1.5 gallons of photochemically reactive solvent in any one day. [SIP Provision R9-3-527.C]

b. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

- (1) Each time a spray painting project is conducted, the Permittee shall log in ink or in an electronic format, a record of the following:
- (a) The date the project was conducted;
 - (b) The duration of the project;
 - (c) Type of control measures employed; and
 - (d) Material Safety Data Sheets for all paints and solvents used in the project.
- (2) Architectural coating and spot painting projects shall be exempt from the recordkeeping requirements of part (1) above.
- (3) In lieu of Condition XV.B.2.b.(1), the Permittee may maintain a section called "Spray Painting Plan" within the Non-Point Source Monitoring Plan referenced in Condition XI.A.1.b.(2), (a) through (c).

C. Mobile Sources

The requirements of this condition are applicable to mobile sources which either move while emitting air contaminants or are frequently moved during the course of their utilization but are not classified as motor vehicles, agricultural vehicles, or are agricultural equipment used in normal farm operations. Mobile sources shall not include portable sources as defined in A.A.C. R18-2-101.84. [A.A.C. R18-2-801]

Emission Limitations/Standards for Roadway and Site Cleaning Machinery

Permittee shall not cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than ten consecutive seconds, the opacity of which exceeds 40 percent. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.

[A.A.C. R18-2-804.A]

D. Demolition/Renovation

1. Emission Limitations/Standards

The Permittee shall comply with the applicable requirements of 40 CFR 61, Subpart M (National Emissions Standards for Hazardous Air Pollutants - Asbestos).

[A.A.C.R18-2-1101.A.8]

2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

Permittee shall keep all required records in a file. The required records include the “NESHAP Notification for Renovation and Demolition Activities” form and all supporting documents.

E. Nonvehicle Air Conditioner Maintenance and/or Services

1. Emission Limitations/Standards

The Permittee shall comply with the applicable requirements of 40 CFR 82 - Subpart F (Protection of Stratospheric Ozone - Recycling and Emissions Reduction).

[40 CFR 82, Subpart F]

2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

Permittee shall keep all records required by the applicable requirements of 40 CFR 82 - Subpart F in a file.

ATTACHMENT "C": APPLICABLE REQUIREMENTS

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

REQUIREMENTS SPECIFICALLY IDENTIFIED AS APPLICABLE

Compliance with the terms contained in this permit shall be deemed compliance with the following federally applicable requirements in effect on the date of permit issuance:

ARIZONA ADMINISTRATIVE CODE (A.A.C.) TITLE 18, Chapter 2

ARTICLE 6 **EMISSIONS FROM EXISTING AND NEW NONPOINT SOURCES**

R18-2-601	General
R18-2-602	Unlawful Open Burning
R18-2-604	Open Areas, Dry Washes, or Riverbeds
R18-2-605	Roadways and Streets
R18-2-606	Material Handling
R18-2-607	Storage Piles
R18-2-608	Mineral Tailings
R18-2-610	Evaluation of Nonpoint Source Emissions

ARTICLE 7 **EXISTING STATIONARY SOURCE PERFORMANCE STANDARDS**

R18-2-702.B	General Provisions
R18-2-703.B	Standards of Performance for Existing Fossil-fuel Fired Steam Generators and General Fuel-burning Equipment
R18-2-703.C.1	Standards of Performance for Existing Fossil-fuel Fired Steam Generators and General Fuel-burning Equipment
R18-2-703.E.1	Standards of Performance for Existing Fossil-fuel Fired Steam Generators and General Fuel-burning Equipment
R18-2-703.H	Standards of Performance for Existing Fossil-fuel Fired Steam Generators and General Fuel-burning Equipment
R18-2-719.B	Standards of Performance for Existing Stationary Rotating Machinery
R18-2-719.C.1	Standards of Performance for Existing Stationary Rotating Machinery
R18-2-719.E	Standards of Performance for Existing Stationary Rotating Machinery
R18-2-719.F	Standards of Performance for Existing Stationary Rotating Machinery
R18-2-719.H	Standards of Performance for Existing Stationary Rotating Machinery
R18-2-719.I	Standards of Performance for Existing Stationary Rotating Machinery
R18-2-719.J	Standards of Performance for Existing Stationary Rotating Machinery

R18-2-721.B.1 Standards of Performance for Existing Non-ferrous Metals Industry Sources
R18-2-721.D Standards of Performance for Existing Non-ferrous Metals Industry Sources

ATTACHMENT "C": APPLICABLE REQUIREMENTS (Contd.)

R18-2-722.F Standards of Performance for Existing Non-ferrous Metals Industry Sources
R18-2-724.A Standards of Performance for Fossil-fuel Fired Industrial and Commercial Equipment
R18-2-724.B Standards of Performance for Fossil-fuel Fired Industrial and Commercial Equipment
R18-2-724.C.1 Standards of Performance for Fossil-fuel Fired Industrial and Commercial Equipment
R18-2-724.J Standards of Performance for Fossil-fuel Fired Industrial and Commercial Equipment
R18-2-726 Standards of Performance for Sandblasting Operations
R18-2-727 Standards of Performance for Spray Painting Operations
SIP R9-2-527.C Standards of Performance for Spray Painting Operations
R18-2-730.A Standards of Performance for Unclassified Sources
R18-2-730.D Standards of Performance for Unclassified Sources
R18-2-730.F Standards of Performance for Unclassified Sources
R18-2-730.G Standards of Performance for Unclassified Sources

ARTICLE 8 EMISSIONS FROM MOBILE SOURCES (NEW AND EXISTING)

R18-2-801 Classification of Mobile Sources
R18-2-804 Roadway and Site Cleaning Machinery

ARTICLE 9 NEW SOURCE PERFORMANCE STANDARDS

R18-2-901.1 40 CFR 60, Subpart A, General Provisions
R18-2-901.5 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-
Commercial-Institutional Steam Generating Units
R18-2-901.42 40 CFR 60, Subpart LL, Standards of Performance for Metallic Mineral Processing
Plants

ARTICLE 11 FEDERAL HAZARDOUS AIR POLLUTANTS

R18-2-1101.A.8 National Emission Standards for Hazardous Air Pollutants (NESHAPs), (by
reference) 40 CFR 61, Subpart M - Asbestos

ACCIDENTAL RELEASE PREVENTION PROGRAM

40 CFR 68 Chemical Accident Prevention Provisions

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

TABLE D-1 OPERATION 001 – MINE

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
005	Crusher No. 1Wet Scrubber	W. W. Sly	Impinjet No. 185	7117	1988	30320 acfm	New
	Crusher No. 1	Traylor by Fuller	60" Type 'C'	87-2037-720-1	1988	7500 TPH	New
006	Conveyor No. DC1	PDMI	240'L x 96"W	Custom Fabricated	1988	7500 TPH	Existing
	Crusher No. 2Wet Scrubber	W. W. Sly	Impinjet No. 185	7118	1988	30320 acfm	New
	Crusher No. 2	Traylor by Fuller	60" Type 'C'	87-2037-720-2	1988	7500 TPH	New
	Conveyor No. DC2	PDMI	240'L x 96"W	Custom Fabricated	1988	7500 TPH	Existing
007	Conveyor No. P8	PDMI	2230'L x 60"W	Custom Fabricated	1988	7500 TPH	Existing
008	Conveyor No. P7	PDMI	3404'L x 60"W	Custom Fabricated	1988	7500 TPH	Existing
012	Baghouse	Flex-Kleen	84WSBC256IIIIG	M35075	1988	18000 acfm	Existing
	Feeder No. 1	N/A	100'L x 96"W	N/A	1988	4500 TPH	Existing
	Feeder No. 2	N/A	100'L x 96"W	N/A	1988	4500 TPH	Existing
013	Conveyor No. P2	PDMI	3920'L x 72"W	Custom Fabricated	1988	9000 TPH	Existing
014	Conveyor No. P4	PDMI	4496'L x 72"W	Custom Fabricated	1988	9000 TPH	Existing
015	Conveyor No. P5	PDMI	7296'L x 72"W	Custom Fabricated	1988	9000 TPH	Existing
016	Conveyor No. P6	PDMI	8898'L x 60"W	Custom Fabricated	1988	9000 TPH	Existing
018	IOS Wet Scrubber	W. W. Sly	Impinjet No. 185	7119	1988/1988	30320	Existing
	Feeder No. 1	PDMI	N/A	Custom Fabricated	1988	2000 TPH	Existing
	Feeder No. 2	PDMI	N/A	Custom Fabricated	1988	2000 TPH	Existing
	Feeder No. 3	PDMI	N/A	Custom Fabricated	1988	2000 TPH	Existing
	Feeder No. 4	PDMI	N/A	Custom Fabricated	1988	2000 TPH	Existing
	Feeder No. 5	PDMI	N/A	Custom Fabricated	1988	2400 TPH	Existing
	Feeder No. 6	PDMI	N/A	Custom Fabricated	1988	2400 TPH	Existing
	Feeder No. 7	PDMI	N/A	Custom Fabricated	1988	2400 TPH	Existing
019	Mine Portable Screening Device	CEC Crusher Service Co.	30 x 80 Radial Stacker	Unit = 92-1-40 Screen = 92-300	1991/1991	300 TPY	New

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

TABLE D-2 OPERATION 002 – MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
021	R1A Conveyor	PDMI	1476'L x 60"W	Custom Fabricated	1988	5500 TPH	Existing
	R7 Conveyor	PDMI	1162"L x 60"W	Custom Fabricated	1988	5500 TPH	Existing
188	1A Conveyor	PDMI	820'L x 54"W	Custom Fabricated	1988	2750 TPH	Existing
	1B Conveyor	PDMI	820'L x 54"W	Custom Fabricated	1988	2750 TPH	Existing
022	¹ Primary Crusher Wet Scrubber	Ducon	UW-4-108	C-79-0314-2	1981/1979	32000 acfm	Existing
	¹ Grizzly	Columbia	DWG 144.68 PATT	N/A	1941	3958 TPH	Existing
	¹ TC Gyratory Crusher	Traylor Bull Dog	60"	20331	1941	3958 TPH	Existing
	¹ Pan Feeder No. 1A	Steven Adams	72"	318342	1941	1979 TPH.	Existing
	¹ Pan Feeder No. 1B	Steven Adams	72"	318342	1941	1979 TPH	Existing
023	Morenci Coarse Ore Bin (Scrubber No. 1)	Ducon	UW-4, Model 4	DS-89-909-4	1989/1989	22500 acfm	Existing
	1A Conveyor	PDMI	Custom Fabricated	Custom Fabricated	1941	2750 TPH	Existing
024	Morenci Coarse Ore Bin (Scrubber No. 2)	Ducon	UW-4, Model 4	DS-89-909-4	1989/1989	22500 acfm	Existing
	1B Conveyor	PDMI	Custom Fabricated	Custom Fabricated	1941	2750 TPH	Existing
025	Morenci Coarse Ore Bin (Scrubber No. 2A)	Emtrol	W-40, Size 84	1183-1-84W40	1990/1990	20000 acfm	Existing
	1 on 1	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH	Existing
	2 on 1	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH	Existing
	3 on 1	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH	Existing
	4 on 1	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH	Existing
	2A Conveyor	PDMI	328'L x 60"W	Custom Fabricated	1941	1300 TPH	Existing
026	Morenci Coarse Ore Bin	Emtrol	W-40, Size 84	1183-2-84W40	1990/1990	20000 acfm	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

(Scrubber No. 2B)						
	1 on 2	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	2 on 2	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	3 on 2	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	4 on 2	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	2B Conveyor	PDMI	328'L x 60"W	Custom Fabricated	1941	1300 TPH Existing
027	Morenci Coarse Ore Bin	Emtrol	W-40, Size 84	1183-3-84W40	1990/1990	20000 acfm Existing
(Scrubber No. 2C)						
	1 on 3	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	2 on 3	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	3 on 3	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	4 on 3	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	2C Conveyor	PDMI	328'L x 60"W	Custom Fabricated	1941	1300 TPH Existing
028	Morenci Coarse Ore Bin	Emtrol	W-40, Size 84	1183-4-84W40	1990/1990	20000 acfm Existing
(Scrubber No. 2D)						
	1 on 4	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	2 on 4	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	3 on 4	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	4 on 4	Stevens Adams	25'L x 60"W	N/A	1941	400 TPH Existing
	2D Conveyor	PDMI	328'L x 60"W	Custom Fabricated	1941	1300 TPH Existing
029	Morenci Fine Crushing	Emtrol	W-40, Size 120	1183-10-120W40	1990/1990	41000 acfm Existing
(Scrubber No. 1)						
	Static Grizzly No. 1	PDMI	6' x 16'	Custom Fabricated	1941	1300TPH Existing
	Shaker Screen 1AS	WS Tyler	F-600	N/A	1941	364 TPH Existing
			5'x10'			
	Shaker Screen 1AN	WS Tyler	F-600	N/A	1941	286 TPH Existing
			5'x10'			
	Shaker Screen 1BS	WS Tyler	F-600	N/A	1941	364 TPH Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	Shaker Screen 1BN	WS Tyler	5'x10' F-600	N/A	1941	286 TPH	Existing
			5'x10'				
	Secondary Crusher No. 1A	Symons	7'	7262	1941	728 TPH	Existing
	Tertiary Crusher No. 1A SH	Symons	7'	7144	1941	750 TPH	Existing
	Tertiary Crusher No. 1B SH	Symons	7'	N/A	1941	750 TPH	Existing
	Conveyor Belt 3	PDMI	652'L x 54"W'	Custom Fabricated	1941	1300TPH	Existing
030	Morenci Fine Crushing (Scrubber No. 2)	Ducon	UW-4	C-81-0975	1990/1981	26000 acfm	Existing
	Static Grizzly No. 2	PDMI	6' x 16'	Custom Fabricated	1941	1300TPH	Existing
	Shaker Screen 2AS	WS Tyler	F-600	N/A	1941	364 TPH	Existing
			5'x10'				
	Shaker Screen 2AN	WS Tyler	F-600	N/A	1941	286 TPH	Existing
			5'x10'				
	Shaker Screen 2BS	WS Tyler	F-600	N/A	1941	364 TPH	Existing
			5'x10'				
	Shaker Screen 2BN	WS Tyler	F-600	N/A	1941	286 TPH	Existing
			5'x10'				
	Secondary Crusher No. 2A	Symons	7'	7287	1941	728 TPH	Existing
	Tertiary Crusher No. 2A SH	Symons	7'	N/A	1941	750 TPH	Existing
	Tertiary Crusher No. 2B SH	Symons	7'	761E	1941	750 TPH	Existing
031	Morenci Fine Crushing (Scrubber No. 3)	Emtrol	W-40, Size 96	1183-5-96W40	1990/1990	26000 acfm	Existing
	Static Grizzly No. 3	PDMI	6' x 16'	Custom Fabricated	1941	1300TPH	Existing
	Shaker Screen 3AS	WS Tyler	F-600	N/A	1941	364 TPH	Existing
			5'x10'				
	Shaker Screen 3AN	WS Tyler	F-600	N/A	1941	286 TPH	Existing
			5'x10'				

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	Shaker Screen 3BS	WS Tyler	F-600 5'x10'	N/A	1941	364 TPH	Existing
	Shaker Screen 3BN	WS Tyler	F-600 5'x10'	N/A	1941	286 TPH	Existing
	Secondary Crusher No. 3A	Symons	7'	N/A	1941	728 TPH	Existing
	Tertiary Crusher No. 3A SH	Symons	7'	N/A	1941	750 TPH	Existing
	Tertiary Crusher No. 3B SH	Symons	7'	7263	1941	750 TPH	Existing
032	Morenci Fine Crushing (Scrubber No. 4)	Emtrol	W-40, Size 120	1183-6-120W40	1990/1990	41000 acfm	Existing
	Static Grizzly No. 4	PDMI	6' x 16'	Custom Fabricated	1941	1300TPH	Existing
	Shaker Screen 4AS	WS Tyler	F-600 5'x10'	N/A	1941	364 TPH	Existing
	Shaker Screen 4AN	WS Tyler	F-600 5'x10'	N/A	1941	286 TPH	Existing
	Shaker Screen 4BS	WS Tyler	F-600 5'x10'	N/A	1941	364 TPH	Existing
	Shaker Screen 4BN	WS Tyler	F-600 5'x10'	N/A	1941	286 TPH	Existing
	Secondary Crusher No. 4A	Symons	7'	7264	1941	728 TPH	Existing
	Tertiary Crusher No. 4A SH	Symons	7'	N/A	1941	750 TPH	Existing
	Tertiary Crusher No. 4B SH	Symons	7'	N/A	1941	750 TPH	Existing
	Conveyor 3A	PDMI	440'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
033	Morenci Fine Crushing (Scrubber No. 5)	Emtrol	W-40, Size 120	1183-7-120W40	1990/1990	41000 acfm	Existing
	Conveyor No. 3	PDMI	652'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
	Conveyor No. 3A	PDMI	440'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
	Conveyor No. 3B	PDMI	96'L x 54"	Custom Fabricated	1941	1300 TPH	Existing
034	Morenci Fine Crushing	Ducon	UW-3, Size 78	K-72-282-1	1973/1972	17000 acfm	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	(Scrubber No. 5B)						
	Conveyor No. 3	PDMI	652'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
	Conveyor No. 3B	PDMI	440'L x 54"W	Custom Fabricated	1941	1300 TPH	Existing
035	Morenci Fine Crushing (Scrubber No. 3-4-5)	Emtrol	96'L x 54"	1183-8-84W40	1990/1990	20000 acfm	Existing
	Conveyor Belt 3	PDMI	652'L x 54"	Custom Fabricated	1941	2600 TPH	Existing
	Conveyor Belt 4	PDMI	147'L x 54"	Custom Fabricated	1941	2600 TPH	Existing
	Conveyor Belt 5	PDMI	1086' x 54"	Custom Fabricated	1941	2600 TPH	Existing
036	Morenci Fine Crushing (Scrubber No. 3A-4A-5A)	Emtrol	W-40, Size 84	1183-9-84W40	1990/1990	20000 acfm	Existing
	Conveyor Belt 3A	PDMI	440'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
	Conveyor Belt 4A	PDMI	150'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
	Conveyor Belt 5A	PDMI	1200'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
037	Morenci Fine Ore Bin (Scrubber No. 1)	Ducon	UW-4, Model 4	C-88-748-1	1988/1988	10000 acfm	Existing
	Belt 5A	PDMI	1200'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
038	Morenci Fine Ore Bin (Scrubber No. 2)	Ducon	UW-4, Model 4	C-88-748-1	1988/1988	10000 acfm	Existing
	Belt 5A	PDMI	1200'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
039	Morenci Fine Ore Bin (Scrubber No. 3)	Ducon	UW-4, Model 4	C-88-0748	1988/1988	10000 acfm	Existing
	Belt 5A	PDMI	1200'L x 54"W	Custom Fabricated	1941	2600 TPH	Existing
040	Morenci Fine Ore Bin (Scrubber No. 4)	Ducon	UW-4, Model 4	C-88-748-1	1988/1988	10000 acfm	Existing
	Belt 5	PDMI	1086' x 54"	Custom Fabricated	1941	2600 TPH	Existing
041	Morenci Fine Ore Bin (Scrubber No. 5)	Ducon	UW-4, Model 4	C-88-0748	1988/1988	10000 acfm	Existing
	Belt 5	PDMI	1086' x 54"	Custom Fabricated	1941	2600 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

042	Morenci Fine Ore Bin (Scrubber No. 6)	Ducon	UW-4, Model 4	C-88-0748	1988/1988	10000 acfm	Existing
	Belt 5	PDMI	1086' x 54"	Custom Fabricated	1941	2600 TPH	Existing
043	Molybdenum Dryer	N/A	N/A	N/A	1941	0.83 TPH	Existing
044	Conveyor No. 9	PDMI	350'L x 24"W	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No. 10A South	PDMI	1003'L x 24"W	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No. 10A North	PDMI	1050'L x 24"	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No. 11	PDMI	660'L x 24"W	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No. 11A	PDMI	660'L x 24"W	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No.11B	PDMI	660'L x 24"	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No. 12	PDMI	62'L x 24"W	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No. 13	PDMI	134'L x 24"W	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No. BA	PDMI	660'L x 24"	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No. BB	PDMI	660'L x 24"W	Custom Fabricated	1941	500 TPH	Existing
	Conveyor No. BC	PDMI	660'L x 24"	Custom Fabricated	1941	500 TPH	Existing
045	Feeder Belt 1E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 1W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-1	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-1	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
046	Feeder Belt 2E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 2W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-2	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-2	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
047	Feeder Belt 3E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 3W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-3	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-3	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
048	Feeder Belt 4E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	Feeder Belt 4W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-4	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-4	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
049	Feeder Belt 5E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 5W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-5	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-5	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
050	Feeder Belt 6E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 6W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-6	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-6	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
051	Feeder Belt 7E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 7W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-7	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-7	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
052	Feeder Belt 8E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 8W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-8	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-8	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
053	Feeder Belt 9E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 9W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-9	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-9	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
054	Feeder Belt 10E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 10W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-10	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-10	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
055	Feeder Belt 11E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	Feeder Belt 11W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-11	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-11	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
056	Feeder Belt 12E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 12W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-12	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-12	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
057	Feeder Belt 13E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 13W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-13	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-13	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
058	Feeder Belt 14E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 14W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-14	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-14	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
059	Feeder Belt 15E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 15W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-15	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-15	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
060	Feeder Belt 16E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 16W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-16	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-16	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
061	Feeder Belt 17E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 17W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-17	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-17	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
062	Feeder Belt 18E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	Feeder Belt 18W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-18	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-18	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
063	Feeder Belt 19E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 19W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-19	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-19	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
064	Feeder Belt 20E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 20W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-20	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-20	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
065	Feeder Belt 21E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 21W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-21	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-21	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
066	Feeder Belt 22E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 22W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-22	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-22	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
067	Feeder Belt 23E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 23W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-23	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-23	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
068	Feeder Belt 24E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 24W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-24	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-24	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
069	Feeder Belt 25E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	Feeder Belt 25W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-25	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-25	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
070	Feeder Belt 26E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 26W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-26	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-26	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
071	Feeder Belt 27E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 27W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-27	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-27	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
072	Feeder Belt 28E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 28W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-28	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-28	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
073	Feeder Belt 29E	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Feeder Belt 29W	PDMI	25'L x 60"W	Custom Fabricated	1941	60 TPH	Existing
	Belt 6-29	PDMI	55.5'L x 24"W	Custom Fabricated	1941	120 TPH	Existing
	Belt 7-29	PDMI	92'L x 20"W	Custom Fabricated	1941	120 TPH	Existing
074	Feeder Belt 30	PDMI	25'L x 60"W	Custom Fabricated	1988	120 TPH	New
	Belt 6-30	PDMI	55.5'L x 24"W	Custom Fabricated	1988	120 TPH	New
	Belt 7-30	PDMI	92'L x 20"W	Custom Fabricated	1988	120 TPH	New
075	Feeder Belt 31	PDMI	25'L x 60"W	Custom Fabricated	1990	120 TPH	New
	Belt 6-31	PDMI	55.5'L x 24"W	Custom Fabricated	1990	120 TPH	New
	Belt 7-31	PDMI	92'L x 20"W	Custom Fabricated	1990	120 TPH	New
076	Feeder Belt 32	PDMI	25'L x 60"W	Custom Fabricated	1995	120 TPH	New
	Belt 6-32	PDMI	55.5'L x 24"W	Custom Fabricated	1995	120 TPH	New
	Belt 7-32	PDMI	92'L x 20"W	Custom Fabricated	1995	120 TPH	New

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

¹ Designates a piece of equipment associated with an alternate operating scenario.

TABLE D-3 OPERATION 003 – METCALF CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
077	Fabric Filter Dust Collector No. 1	MikroPul	N/A	N/A	2000	3500 acfm	Existing
	R1A Conveyor	PDMI	1476'L x 60"W	Custom Fabricated	1988	5500 TPH	Existing
	R1B Conveyor	PDMI	1400'L x 60"W	Custom Fabricated	1988	4500 TPH	Existing
	R2 Conveyor	PDMI	1755'L x 60"W	Custom Fabricated	1988/2000	4500 TPH	Existing
078	Fabric Filter Dust Collector No. 2	MikroPul	N/A	N/A	2000	3500 acfm	Existing
	R3 Conveyor	PDMI	1817'L x 60"W	Custom Fabricated	1988/2000	4500 TPH	Existing
079	Fabric Filter Dust Collector No. 3	MikroPul	N/A	N/A	2000	3500 acfm	Existing
	R4 Conveyor	PDMI	6200'L x 60"W	Custom Fabricated	1988/2000	4500 TPH	Existing
080	Fabric Filter Dust Collector No. 4	MikroPul	N/A	N/A	2000	7000 acfm	Existing
	R5 Conveyor	PDMI	403'L x 60"W	Custom Fabricated	1988/2000	4500 TPH	Existing
081	R6 Conveyor	PDMI	351'L x 60"W	Custom Fabricated	1988/2000	4500 TPH	Existing
082	Metcalfe Track Hopper (Scrubber No. 3C)	National Hydro-Filter	850	13D25003C	1974	38800 acfm	Existing
083	Metcalfe Track Hopper (Scrubber No. 3B)	National Hydro-Filter	850	13D25003B	1974	38800 acfm	Existing
084	Metcalfe Track Hopper (Scrubber No. 3A)	National Hydro-Filter	900	13D25003A	1974	42500 acfm	Existing
	Apron Feeder No. 2A1	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2A2	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2A3	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2A4	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2A5	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2A6	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	Apron Feeder No. 2B1	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2B2	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2B3	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2B4	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2B5	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	Apron Feeder No. 2B6	Link-Belt	67'L x 48"W	N/A	1974	750 TPH	Existing
	4A Conveyor	PDMI	645'L x 54"	Custom Fabricated	1974	1500 TPH	Existing
	4B Conveyor	PDMI	645'L x 54"	Custom Fabricated	1974	1500 TPH	Existing
	4C Conveyor	PDMI	645'L x 54"	Custom Fabricated	1995	1500 TPH	New
	Conveyor No. 3C	PDMI	210'L x 54"	Custom Fabricated	1995	1500 TPH	New
	Conveyor No. 3B2	PDMI	102'L x 54"	Custom Fabricated	1974	975 TPH	Existing
	Conveyor No. 3A2	PDMI	102'L x 54"	Custom Fabricated	1974	975 TPH	Existing
	Conveyor No. 3B3	PDMI	102'L x 54"	Custom Fabricated	1974	975 TPH	Existing
	Conveyor No. 3A3	PDMI	102'L x 54"	Custom Fabricated	1974	975 TPH	Existing
085	Metcalf Fine Crushing Plant (Scrubber No. 6)	Ducon	A-33C, No. 114	C-89-0948-3	1989	41700 acfm	Existing
	4A Conveyor	PDMI	645'L x 54"	Custom Fabricated	1974	1500 TPH	Existing
	4B Conveyor	PDMI	645'L x 54"	Custom Fabricated	1974	1500 TPH	Existing
	4C Conveyor	PDMI	645'L x 54"	Custom Fabricated	1974	1500 TPH	Existing
	A Scalping Screen	W.S. Tyler	F-1608S-0	N/A	1995	1500 TPH	New
	A Secondary Crusher	Nordberg	7' Extra Heavy Duty	35245962	1974	1500 TPH	Existing
	A1 Secondary Screen	C.E. Tyler	F-900	N/A	1974	750 TPH	Existing
	A2 Secondary Screen	C.E. Tyler	F-1406-X	20350	1974	750 TPH	Existing
	B Scalping Screen	W.S. Tyler	F-1608S-0	N/A	1974	1500 TPH	New
	B Secondary Crusher	Nordberg	7' Extra Heavy Duty	35245961	1974	1500 TPH	Existing
	B1 Secondary Screen	C.E. Tyler	F-900	20737	1974	750 TPH	Existing
	B2 Secondary Screen	C.E. Tyler	F-1406-X	20353	1974	750 TPH	Existing
	Conveyor Belt No. 7	PDMI	602'L x 60"	Custom Fabricated	1974	1500 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

088	Conveyor Belt No. 8	PDMI	606'L x 60"	Custom Fabricated	1974	1500 TPH	Existing
	Metcalf Fine Crushing Plant (Scrubber No. 4)	Ducon	A-33C, No. 114	C-89-0948-3	1989	42500 acfm	New
089	Conveyor No. 6	PDMI	1292'L x 60"	Custom Fabricated	1974	4500 TPH	Existing
	Tertiary Surge Bin	PDMI	Custom Fabricated	Custom Fbricated	1974/1995	4500 TPH	New
	Metcalf Fine Crushing Plant (Scrubber No. 5)	Ducon	A-33C, No. 102	C-89-0948-4	1989	36200 acfm	Existing
	Conveyor No. 7	PDMI	602'L x 60"	Custom Fabricated	1974	1500 TPH	Existing
090	Conveyor No. 5	PDMI	660'L x 60"	Custom Fabricated	1974	4500 TPH	Existing
	Conveyor No. 8	PDMI	606'L x 60"	Custom Fabricated	1974	1500 TPH	Existing
	Conveyor No. 11	PDMI	89'L x 54"W	Custom Fabricated	1974	1500 TPH	Existing
	Metcalf Fine Crushing Plant (Scrubber No. 8)	Ducon	A-33C, No. 78	C-89-0948-1	1989	19500 acfm	Existing
	Conveyor No. 5	PDMI	660'L x 60"	Custom Fabricated	1974	4500 TPH	Existing
	Conveyor No. 6	PDMI	1292' x 60"	Custom Fabricated	1974	4500 TPH	Existing
092	Metcalf Fine Crushing Plant (Scrubber No. 1)	Hydronics Enviro Corp.	Model A	D-3117-1	12/1/95	22000 acfm	New
197	Conveyor Belt 4C	PDMI	645'L x 54"	Custom Fabricated	1974	1500 TPH	Existing
	C Scalping Screen	W.S. Tyler	F-1600	N/A	1995	1500 TPH	New
	C Secondary Crusher	Nordberg	7' Extra Heavy Duty	7632	1995	1500 TPH	New
	C1 Secondary Screen	W.S. Tyler	F-900	N/A	1995	750 TPH	New
	C2 Secondary Screen	W.S. Tyler	F-900	N/A	1995	750 TPH	New
	Conveyor No. 7	PDMI	602'L x 60"	Custom Fabricated	1974	1500 TPH	Existing
	Conveyor No. 8	PDMI	606'L x 60"	Custom Fabricated	1974	1500 TPH	Existing
	Fabric Filter Dust Collector No. 5	MikroPul	N/A	N/A	2000	3500 acfm	Existing
	S10 Conveyor	PDMI	N/A	Custom Fabricated	2000	4500 TPH	Existing
	Fabric Filter Dust Collector No. 6	MikroPul	N/A	N/A	2000	3500 acfm	Existing
198	S11 Conveyor	PDMI	N/A	Custom Fabricated	2000	4500 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

201	Fabric Filter Dust Collector No. 7	MikroPul	N/A	N/A	2000	10500 acfm	Existing
	A1A Conveyor	PDMI	N/A	Custom Fabricated	2000	4500 TPH	Existing
202	Fabric Filter Dust Collector No. 8	MikroPul	N/A	N/A	2000	3500 acfm	Existing
	A2A Conveyor	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
203	Fabric Filter Dust Collector No. 9	MikroPul	N/A	N/A	2000	3500 acfm	Existing
	A2C Conveyor	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
204	Agglomeration Unit 1	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
205	Agglomeration Unit 2	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
206 & 207	S12 Conveyor	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
208	13A Conveyor	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
209	Ramp Conveyor 14A	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
210	Luffing Boom 15A	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
211	Mobile Stacking Conveyor A	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
212	Radial Stacker A	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
214	Conveyor SF3	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
215	Conveyor 13B	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
216	Ramp Conveyor 14B	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
217	Luffing Boom 15B	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
218	Mobile Stacking Conveyor B	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
219	Radial Stacker B	PDMI	N/A	Custom Fabricated	2000	2600 TPH	Existing
Emit Indoors	A1 and A2 Secondary Size Undersize Chute	PDMI	Custom Fabricated	Custom Fabricated	1974	1500 TPH	N/A
	B1 and B2 Secondary Size Undersize Chute	PDMI	Custom Fabricated	Custom Fabricated	1974	1500 TPH	N/A
	C1 and C2 Secondary Size Undersize Chute	PDMI	Custom Fabricated	Custom Fabricated	1974	1500 TPH	N/A

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99

For

Phelps Dodge Morenci, Inc.

Conveyor Belt No. 12-1	PDMI	75'L x 60"	Custom Fabricated	1974	750 TPH	N/A
Conveyor Belt No. 12-2	PDMI	75'L x 60"	Custom Fabricated	1974	750 TPH	N/A
Conveyor Belt No. 12-3	PDMI	75'L x 60"	Custom Fabricated	1974	750 TPH	N/A
Conveyor Belt No. 12-4						N/A
Conveyor Belt No. 12-5	PDMI	75'L x 60"	Custom Fabricated	1974	750 TPH	N/A
Conveyor Belt No. 12-6	PDMI	75'L x 60"	Custom Fabricated	1995	750 TPH	N/A
Shorthead Crusher No. 1	PDMI	75'L x 60"	Custom Fabricated	1995	750 TPH	N/A
Shorthead Crusher No. 2	Nordberg	7' Heavy Duty	N/A	1974	750 TPH	N/A
Shorthead Crusher No. 3	Nordberg	7' Heavy Duty	7731	1974	750 TPH	N/A
Shorthead Crusher No. 4	Nordberg	7' Heavy Duty	35246337	1974	750 TPH	N/A
Tertiary Crusher No. 5	Nordberg	7' Heavy Duty	35249618	1974	750 TPH	N/A
Tertiary Crusher No. 6	Nordberg	7' Heavy Duty	7629	1995	750 TPH	N/A
Tertiary Screen No. 1A	Nordberg	7' Heavy Duty	7551	1995	750 TPH	N/A
Tertiary Screen No. 1B	C.E. Tyler	F-600	20355	1974	375 TPH	N/A
1A & 1B Screens Undersize	C.E. Tyler	F-600	20357	1974	375 TPH	N/A
Chute	PDMI	Custom Fabricated	Custom Fabricated	1974	750 TPH	
Tertiary Screen No. 2A						N/A
Tertiary Screen No. 2B	C.E. Tyler	F-600	20358	1974	375 TPH	N/A
2A & 2B Undersize	C.E. Tyler	F-600	N/A	1974	375 TPH	N/A
Chute	PDMI	Custom Fabricated	Custom Fabricated	1974	750 TPH	
Tertiary Screen No. 3A						N/A
Tertiary Screen No. 3B	C.E. Tyler	F-600	20355	1974	375 TPH	N/A
3A & 3B Undersize	C.E. Tyler	F-600	20357	1974	375 TPH	N/A
Chute	PDMI	Custom Fabricated	Custom Fabricated	1974	750 TPH	
Tertiary Screen No. 4A						N/A
Tertiary Screen No. 4B	C.E. Tyler	F-600	20358	1974	375 TPH	N/A
4A & 4B Undersize	C.E. Tyler	F-600	N/A	1974	375 TPH	N/A
Chute	PDMI	Custom Fabricated	Custom Fabricated	1974	750 TPH	

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	Tertiary Screen No. 5A	W.S. Tyler	F-1208-X	N/A	1995		N/A
	Tertiary Screen No. 5B	W.S. Tyler	F-600	N/A	1995	375 TPH	N/A
	5A & 5B Undersize Chute	PDMI	Custom Fabricated	Custom Fabricated	1974	375 TPH	N/A
						750 TPH	
	Tertiary Screen No. 6A						N/A
	Tertiary Screen No. 6B	W.S. Tyler	F-1208-X	Custom Fabricated	1995	375 TPH	N/A
	6A & 6B Undersize Chute	W.S. Tyler	F-600	Custom Fabricated	1995	375 TPH	N/A
		PDMI	Custom Fabricated	Custom Fabricated	1974	750 TPH	
	Conveyor No. 7						N/A
	Conveyor No. 8	PDMI	602'L x 60"	Custom Fabricated	1974	1500 TPH	N/A
	Conveyor No. 9	PDMI	606'L x 60"	Custom Fabricated	1974	1500 TPH	N/A
	Conveyor No. 14	PDMI	485'L x 60"	Custom Fabricated	1974/2000	4500 TPH	N/A
094	Metcalf Fine Ore Bin (Scrubber No. 9)	PDMI	1952'L x 60"	Custom Fabricated	1974/2000	4500 TPH	Existing
		National Hydro-Filter	225	15D25009	1974	11630 acfm	
	Conveyor No. 14	PDMI	1952'L x 60"	Custom Fabricated	1974	2925 TPH	Existing
	Fine Ore Bin	PDMI	Custom Fabricated	Custom Fabricated	1974	2925 TPH	Existing
095	Metcalf Ball Mill Belt (Scrubber No. 10)	National Hydro-Filter	225	15D25010	1974	11630 acfm	Existing
	Conveyor 15-B4-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-B4-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-B4	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-B4	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-B5-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-B5-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-B5	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-B5	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-B6-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99

For

Phelps Dodge Morenci, Inc.

096	Conveyor 15-B6-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-B6	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-B6	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Metcalf Fine Ore Bin (Scrubber No. 15)	Hydronics Enviro Corp.	410	15D25015	10/18/96	10000 acfm	New
097	Conveyor No. 14	PDMI	1952'L x 60"	Custom Fabricated	1996	2925 TPH	New
	Fine Ore Bin	PDMI	Custom Fabricated	Custom Fabricated	1996	2925 TPH	New
	Metcalf Ball Mill Belts (Scrubber No. 11A)	Fisher Klosterman	MS 450	16701	1974	10000 acfm	Existing
	Conveyor 15-A1-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-A1	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-A1	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-A2-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-A2-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-A2	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-A2	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-A3-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-A3-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-A3	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-A3	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Metcalf Ball Mill Belts (Scrubber No. 11B)	Fisher Klosterman	MS 450	16701	1974	10000 acfm	Existing
	Conveyor 15-A4-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
098	Conveyor 15-A4-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-A4	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-A4	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-A5-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-A5-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

	Conveyor 16-A5	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-A5	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-A6-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-A6-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-A6	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-A6	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
099	Metcalf Ball Mill Belts (Scrubber No. 12A)	Fisher Klosterman	MS 450	16701	1974	10000 acfm	Existing
	Conveyor 15-B1-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-B1-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-B1	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-B1	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-B2-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-B2-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-B2	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-B2	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-B3-W	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 15-B3-E	PDMI	67'L x 48"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 16-B3	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
	Conveyor 17-B3	PDMI	71'L x 24"W	Custom Fabricated	1974	220 TPH	Existing
100	Metcalf Fine Ore Bin (Scrubber No. 12B)	Fisher Klosterman	MS 450	16701	1974	10000 acfm	Existing
	Conveyor No. 14	PDMI	Custom Fabricated	Custom Fabricated	1974	2925 TPH	Existing
	Fine Ore Bin	PDMI	Custom Fabricated	Custom Fabricated	1974	2925 TPH	Existing
101	Metcalf Ball Mill Belts (Scrubber No. 14)	Hydronics Enviro Corp.	412	15D25014	06/18/96	12000 acfm	New
	Conveyor 15-C1-W	PDMI	67'L x 48"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 15-C1-E	PDMI	67'L x 48"W	Custom Fabricated	1996	220 TPH	New

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99

For

Phelps Dodge Morenci, Inc.

	Conveyor 16-C1	PDMI	71'L x 24"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 17-C1	PDMI	71'L x 24"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 15-C2-W	PDMI	67'L x 48"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 15-C2-E	PDMI	67'L x 48"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 16-C2	PDMI	71'L x 24"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 17-C2	PDMI	71'L x 24"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 15-C3-W	PDMI	67'L x 48"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 15-C3-E	PDMI	67'L x 48"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 16-C3	PDMI	71'L x 24"W	Custom Fabricated	1996	220 TPH	New
	Conveyor 17-C3	PDMI	71'L x 24"W	Custom Fabricated	1996	220 TPH	New
102	Metcalf Primary Crusher Scrubber	National Hydro-Filter	Size A-34	11D25001A	1974	25500 acfm	Existing
	Primary Crusher	N/A	60"	N/A	1974	7500 TPH	Existing
	Apron Feeder	N/A	N/A	N/A	1974	7500 TPH	Existing
	Conveyor No. 1	PDMI	60"	Custom Fabricated	1974	7500 TPH	Existing
	Conveyor No. 2	PDMI	60"	Custom Fabricated	1974	7500 TPH	Existing
103	Metcalf IOS East Side Scrubber	National Hydro-Filter	Size A-34	11D25001A	1974	70000 acfm	Existing
	Conveyor No. 2	PDMI	60"	Custom Fabricated	1974	7500 TPH	Existing
104	Metcalf IOS West Side Scrubber	National Hydro-Filter	Size A-34	11D25001A	1974	121000 acfm	Existing
	Conveyor No. 2	PDMI	60"	Custom Fabricated	1974	7500 TPH	Existing
105	Conveyor 15-A1-W	PDMI	67'L x 48"W	Custom Fabricated	1995	220 TPH	New
	Conveyor 17-A7	PDMI	97'L x 24"W	Custom Fabricated	1995	220 TPH	New

TABLE D-4 OPERATION 004 – LIME PLANT

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
106	SW Lime Plant Baghouse	Flex-Kleen	84-WSBC-256	84-WSBC-432-KD	1975	30000 acfm	Existing
	Truck Hopper	PDMI	Custom Fabricated	Custom Fabricated	1975	38 TPH	Existing
	Conveyor No. 25	PDMI	65'L x 36"W	Custom Fabricated	1975	38 TPH	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

107	Conveyor No. 26	PDMI	544'L x 30"W	Custom Fabricated	1975	38 TPH	Existing
	Conveyor No. 27	PDMI	170'L x 36"W	Custom Fabricated	1975	38 TPH	Existing
	SW Lime Plant Wet Scrubber	Ducon	UW-4	K-74-380-2-C	1975	10000 acfm	Existing
	Conveyor No. 28.1	PDMI	24'L x 30"W	Custom Fabricated	1975	19	Existing
	Conveyor No. 28.2	PDMI	24'L x 30"W	Custom Fabricated	1975	19	Existing
	Conveyor No. 28D	PDMI	N/A	Custom Fabricated	1975	19	Existing
	Conveyor No. 28 C	PDMI	N/A	Custom Fabricated	1975	19	Existing
	Conveyor No. 29	PDMI	544'L x 24"W	Custom Fabricated	1975	19	Existing

TABLE D-5 OPERATION 005 – METCALF COMBINED CYCYLE POWERHOUSE

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
108	Gas Turbine (Unit 1)	General Electric	Frame 5 Model M	214249	1970	240 MM Btu/hr	Existing
109	Gas Boiler (Unit 1)	Foster Wheeler	N/A	19401	1970	250 MM Btu/hr	Existing
110	Gas Turbine (Unit 2)	General Electric	Frame 5 Model M	214250	1970	240 MM Btu/hr	Existing
111	Gas Boiler (Unit 2)	Foster Wheeler	N/A	19402	1970	250 MM Btu/hr	Existing

TABLE D-6 OPERATION 007– DIESEL GENERATORS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
115	4600 kW Diesel Generator	Caterpillar	N/A	N/A	1971	4600 kW	Existing

TABLE D-7 OPERATION 009 – SOLUTION EXTRACTION/ELECTROWINNING

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
117	Central SX	PDMI	Custom Fabricated	Custom Fabricated	1987	12,000 gpm (PLS)	Existing
118	Metcalf SX	PDMI	Custom Fabricated	Custom Fabricated	1987	24,000 gpm (PLS)	Existing
119	Modoc SX	PDMI	Custom Fabricated	Custom Fabricated	1992	24,000 gpm (PLS)	Existing
120	Southwest SX	PDMI	Custom Fabricated	Custom Fabricated	1998/2000	17,000 gpm (PLS)	Existing
121	Small Industrial Boiler No.1	Cleaver-Brooks	CB-700-500-125	94148	1995	20.9 MM Btu/hr	New
122	Instantaneous Hot Water Heater No. 1	Sioux	D-3000	90-049	1992	1.0 MM Btu/hr	Existing
123	Instantaneous Hot Water Heater No. 2	Sioux	D-3000	90-050	1992	1.0 MM Btu/hr	Existing
124	Instantaneous Hot Water Heater No. 3	Sioux	D-3000	91-051	1992	1.0 MM Btu/hr	Existing
125	Instantaneous Hot Water Heater No. 4	Sioux	D-3000	95-884	1995	1.0 MM Btu/hr	Existing
126	Instantaneous Hot Water Heater No. 5	Sioux	D-3000	95-885	1995	1.0 MM Btu/hr	Existing
127	Small Industrial Boiler No.2	Cleaver-Brooks	CB-700-500-125	0L097318	1998	20.9 MM Btu/hr	New
128	Small Industrial Boiler No.3	Cleaver-Brooks	CB-700-500-125	0L097317	1998	20.9 MM Btu/hr	New
129	Diluent Tank No. 1	PDMI	Custom Fabricated	Custom Fabricated	1987	25,000 gal. V.P. = 0.0027	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

130	Diluent Tank No. 2	PDMI	Custom Fabricated	Custom Fabricated	1987	50,000 gal. V.P. = 0.0027	Existing
131	Diluent Tank No. 3	PDMI	Custom Fabricated	Custom Fabricated	1992	50,000 gal. V.P. = 0.0027	Existing
222	Small Industrial Boiler No.4	Cleaver-Brooks	CB-700-500-125	N/A	2000	20.9 MMBtu/hr	New
223	Small Industrial Boiler No.5	Cleaver-Brooks	CB-700-500-125	N/A	2000	20.9 MMBtu/hr	New
221	Stargo Tankhouse	PDMI	Custom Fabricated	Custom Fabricated	2000	750, 000 lbs/ copper/day	Existing

TABLE D-8 OPERATION 010 – CONCRETE BATCH PLANT

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
144-149	Concrete Batch Plant	Ross	Boss V.P. 12	N/A	N/A	12 yd ³	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

TABLE D-9 OPERATION 011 – STORAGE TANKS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
150	Diesel Tank No D 1	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	200,000 gal.	Existing
151	Diesel Tank No. D 2	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	200,000 gal.	Existing
152	Diesel Tank No. D 3	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,000,000 gal.	Existing
153	Diesel Tank No. D 4	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,000,000 gal.	Existing
154	Diesel Tank No. D-5	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	50,000 gal.	Existing
155	Gasoline Tank No. G1	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	12,000 gal.	Existing
156	Gasoline Tank No. G2	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	12,000 gal.	Existing
157	Gasoline Tank No. G2	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	12,000 gal.	Existing
158	Diesel Tank No. Pit 60	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	105,000 gal.	Existing
159	Diesel Tank No. Pit 61	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	105,000 gal.	Existing
160	Diesel Tank No. Pit 62	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	541,500 gal.	Existing
161	Diesel Tank No. Pit 95	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	103,000 gal.	Existing
162	Diesel Tank No. SC 1	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	2,000,000 gal.	Existing
163	Diesel Tank No. SC 2	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,000,000 gal	Existing
164	Diesel Tank No. SC 3	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,000,000 gal	Existing
165	Diesel Tank No. SC 4	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,000,000 gal	Existing
166	Diesel Tank No. SC 5	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	500,000 gal.	Existing
167	Diesel Tank No. SC 6	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	500,000 gal.	Existing
168	Diesel Tank No. SC 7	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	500,000 gal.	Existing
169	Diesel Tank No. SC 8	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	500,000 gal.	Existing
170	Diesel Tank No. MTF 1	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,500,000 gal.	Existing
171	Diesel Tank No. MTF 2	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,500,000 gal.	Existing
172	Diesel Tank No. MTF 3	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,500,000 gal.	Existing
173	Diesel Tank No. MTF 4	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,500,000 gal.	Existing
174	Diesel Tank No. MTF 5	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,500,000 gal.	Existing

ATTACHMENT "D":EQUIPMENT LIST

Air Quality Control Permit No. M110734P1-99 For *Phelps Dodge Morenci, Inc.*

175	Diesel Tank No. MTF 6	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,500,000 gal.	Existing
176	Diesel Tank No. MTF 7	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1984	1,500,000 gal.	Existing

Diesel Vapor Pressure = 0.01 psia
Gasoline Vapor Pressure = 6.62 psia

TABLE D-10 OPERATION 012 – MORENCI STEAM POWERHOUSE

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
177	Boiler 1	Combustion Engineering	25/30-V3-5/14-22	National Board No. 1759 Arizona No. 7076	1941	160,000 lbs/hr evaporation rate	Existing
178	Boiler 2	Combustion Engineering	25/30-V3-5/14-22	National Board No. 1761 Arizona No. 7077	1941	160,000 lbs/hr evaporation rate	Existing
179	Boiler 3	Combustion Engineering	25/30-V3-5/14-22	National Board No. 1760 Arizona No. 7078	1943	160,000 lbs/hr evaporation rate	Existing
180	Boiler 4	Combustion Engineering	VU-60	National Board No. 1771 Arizona No. 7079	1965	160,000 lbs/hr evaporation rate	Existing
181	Superheater 1	Foster Wheeler	N/A	Foster Wheeler No. S-4397 Arizona No. 7078	1941	300,000 lbs steam/hr	Existing
182	Superheater 2	Foster Wheeler	N/A	Foster Wheeler No. S-5367 Arizona No. 7090	1943	300,000 lbs steam/hr	Existing

TABLE D-11 OPERATION 013 – GRIZZLY OPERATIONS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Rated Capacity	Existing/New
189	Mine Portable Grizzly	PDMI	Custom Fabricated	Custom Fabricated	1998	1250 TPH	Existing
190	Portable Grizzly No. 1	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1970	1000 TPH	Existing
191	Portable SW Grizzly	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1970	50 TPH	Existing
192	Slag Grizzly	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1970	100 TPH	Existing
193	Concentrate Grizzly	PDMI	Custom Fabricated	Custom Fabricated	Prior to 1970	60 TPH	Existing